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INTRATRACHEAL INSUFFLATION *

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The essentials of the method of intratracheal insufflation consist, (1) in the introduction deep into the trachea of a flexible elastic tube, the diameter of which has to be much smaller than the lumen of the trachea, and, (2) the driving through this tube of a nearly continuous stream of air which returns through the space between the tube and the walls of the trachea. The distinguishing features of this method consist in the following two new principles: 1. By bringing the pure air directly to the larger bronchi, and by driving out the vitiated air from these bronchi through the force of the returning air stream, that part of the "death space" is eliminated which is represented by the mouth, pharynx, larynx and trachea. The chief aim of the complicated nervous and muscular mechanisms of respiration is to establish an efficient ventilation, capable of overcoming the obstacles offered by the mentioned "death space." A well-arranged intratracheal insufflation is fully capable of relieving and substituting the normal respiratory mechanism. 2. The practically continuous recurrent air stream prevents the invasion of indifferent or infectious foreign matter from the pharynx into the trachea.

The usefulness of the method is at least threefold. 1. It is capable, as stated before, of keeping up an efficient respiration in cases in which the normal mechanism of the external respiration fails. 2. It overcomes efficiently and conveniently the difficulties presented by double pneumothorax. 3. It offers a safe and reliable method for anesthesia, especially for the administration of ether.

In the course of the last two years, since the first publication by Dr. Auer and myself on "Continuous Respiration Without Respiratory Movements,"[1] several hundred experiments were carried out in our department at the Rockefeller Institute on the various phases and relations of the method of intratracheal insufflation. In the very short time at my disposal, I shall confine myself to brief reports and considerations of the more practical results of several series of investigations.

THE INNOCUOUSNESS OF THE METHOD

We shall deal first with the question whether any injury can be done to the respiratory organs by the use of intratracheal insufflation, as was urged, on purely theoretical grounds, by critics of this method. We devoted a good deal of attention to this point. The following results give, I believe, an unmistakable answer.

1. The method was practiced in a very large number of experiments, in most of them the insufflation lasted for many hours, and in some as long as twelve hours. In not a single case did bronchitis or pneumonia develop which had to be ascribed to the preceding insufflation. Pulmonary affections are not a rare occurrence in dogs, especially in stray animals. Nevertheless the dogs which were subject to insufflation did not show a greater disposition toward respiratory affections than animals which were not exposed to such treatment.

2. In two systematic series of experiments carried out by Dr. Githens and myself the question of aspiration was studied by means of severe tests. In one series after filling up the stomach with acid solutions, vomiting was produced by hypodermic injections of apomorphin. The vomited material was left in the mouth and pharynx for a long period during the insufflation. In another series mouth and pharynx were filled with a suspension of powdered charcoal. The animals were kept during this period under deep or light ether anesthesia. In not a single case in which insufflation was practiced was vomited matter or some of the charcoal found in the trachea or bronchi. On the other hand, when a tube was in the trachea, but no air was driven through the intratracheal tube, and the condition, therefore, was, to a degree, similar to Kuhn's method of peroral intubation, the contents of the mouth and pharynx often came out through the free end of the tube. Furthermore, when deep anesthesia was induced, in these latter experiments, especially in the experiments with charcoal, the animals died in a few minutes, and at the autopsy trachea and bronchi were found to be loaded with charcoal. When the animal was only lightly anesthetized, so that the deglutition reflex remained active, rapid swallowing seemed to clear away most of the foreign material present in the pharynx. These parallel experiments demonstrate with great distinctness the efficiency and importance of the recurrent air-stream in the insufflation method.

3. In an investigation carried out by Dr. Lamar and myself we succeeded, in a large number of experiments on dogs, to produce lobar pneumonia in every instance, with a mortality of over 15 per cent. Employing now the same method, Dr. Githens and I produced lobar pneumonia in a series of nine dogs and subsequently practiced insufflation on them for one hour every day for eight to ten days. Not a single animal of this series succumbed to pneumonia. These latter experiments certainly show that insufflation brings no greater danger to the respiratory organs even when the animals are already afflicted with such a serious but not intensely fatal disease as lobar pneumonia.

All our various extensive experiences, therefore, demonstrate conclusively that the method of intratracheal insufflation, far from being a menace to the respiratory organs, is rather capable of protecting them against injurious invasions of foreign matter.

* From Department of Physiology and Pharmacology of the Rockefeller Institute for Medical Research.

1. Jour. Exper. Med., xi, 622, 1909.

INSUFFLATION, DIFFERENTIAL PRESSURE AND THE FACTORS OF SAFETY

Significant is the following consideration of intratracheal insufflation as a method to overcome the dangers of pneumothorax. Some surgical writers see in the intratracheal insufflation nothing more than a modification of the Brauer, or the overpressure, method; neither do they anticipate that it is capable of accomplishing more than that method. This view is based on an unfamiliarity with the essential principles of either of the methods and is entirely erroneous. The methods of overpressure as well as that of underpressure aim only at keeping the lungs distended, but do not provide for any ventilation of the lungs. This is left, as in the normal animals, entirely to the activity of the respiratory muscles. It is fundamentally different, however, with the method of intratracheal insufflation; if it is properly adjusted, it is able to carry on the process of ventilation with complete efficiency, without any aid of the respiratory mechanism. This difference is a vital point, which, however, is imperfectly understood by the workers in this line. Our own attention was directed to the importance of this difference by some striking results obtained by Dr. Auer and myself in a series of experiments in which the Brauer method and the method of intratracheal insufflation were compared. In these experiments after both pleural cavities were kept widely open for one hour or an hour and a half, both lower lobes of the lungs were removed from their approximation to the diaphragm and the posterior walls. *When using the Brauer method the animals died in a short time, often in two or three minutes.* Furthermore, the replacing of the lobes and even the starting of proper artificial respiration could not, in many, if not in most cases, restore the activity of the heart. In the insufflation method, on the other hand, even a fairly complete lifting out of the lungs from the thoracic cavity never interferes with the activity of the heart. A further difference in the behavior of the heart could be observed, when the pressure keeping up the inflation or the insufflation was discontinued and the lungs permitted to collapse. *In the Brauer method, within a few seconds after the discontinuation, the heart becomes slow and is liable to stop in less than half a minute;* while under the insufflation method a minute and a half and even two minutes may pass before the effects of asphyxia will show themselves. The same difference is manifest in the readiness with which the heart recuperates after the pressure is restored again. What is the cause of this difference?

To my mind the difference consists in the unquestionable fact that *in the Brauer method the respiratory process is frequently deprived of nearly all of its factors of safety*, while in the method of the intratracheal insufflation none is missing. The question of the preservation of the factors of safety is such an important requirement in many fields of surgical activity that I shall try to explain its meaning a little more fully. A few years ago, in a Harvey lecture, I showed that the various mechanisms of the animal body are, like human-made machines, well provided with factors of safety. When a bridge, a building or a machine is constructed, it is built, in the first place, to be able to resist the expected maximum of stress or to accomplish the expected maximum of work. Beside this provision still further powers of resistance are added to the structure, or dynamic efficiency is added to the machine, in order to meet unexpected exigencies. These additions are termed *factors of safety;* they may consist of fourfold units or of tenfold, twentyfold, etc., according to the object for which the structures or the machine are built.

In the animal body we find that the kidneys have functional substance more than twice, the liver four times, the thyroids six times, the pancreas at least ten times more than is absolutely necessary. To come to the point under discussion, the normal respiratory mechanism provides for an exchange of gases to a much greater extent than is absolutely indispensable for the maintenance of life—it is provided, as we say, with a large number of factors of safety. How large they are, we may get an idea when we analyze the conditions prevailing in the Sauerbruch or in the Brauer methods. As stated before, in both methods the actual respiration is accomplished by the contraction of the respiratory muscles. By the inspiratory distention of the thoracic cavity, and the decrease of pressure therein, air is made to rush into it, to make up the deficit. In normal animals the air can rush in only through the trachea; in animals with open thorax, however, air may rush in also through the opening in the wall of the thorax. The same is true also of the expiration, the movements of the air being only in the reverse direction. Now since the opening in the thoracic wall during an intrathoracic operation is by far much larger than the lumen of the trachea or that of the glottis, it is evident that only a very small fraction of the air enters and leaves the tracheal path during inspiration and expiration. That fraction of a respiration is surely too small to maintain life even for a short time. However, we may assume that even under these circumstances air rushes through the trachea into the lowest and most posterior part of the lungs, by the virtue of their close approximation to the respiratory muscles, more readily than through the artificial opening in the thoracic walls. These parts of the lungs, when in normal position, contribute therefore essentially to the maintenance of life under these precarious circumstances; hence the fatal effects of the separation of the posterior lobes from their natural approximation. But, whatever the mechanism may be, it is evident that the total sum of the various contributions to the exchange of air in the methods of differential pressures can be only a small fraction of the exchange which takes place in normal conditions. Nevertheless this fraction is frequently sufficient to keep up the life of the animal for a long time, to keep it up during an operation which may last for several hours.

This shows that the exchange of gases in the normal external respiration is many times more extensive than is necessary for the immediate maintenance of life; in other words, the normal function of the external respiration is provided with many factors of safety. But it shows also that under differential pressure the external respiration is frequently deprived of most of its factors of safety. What is said of the external respiration applies also to the internal respiration, and we may therefore say that in operations under the Sauerbruch or the Brauer methods the nerve cells of the medulla and the muscle fibers of the heart continue to functionate under a minimum exchange of gases. But we must remember that these structures are very sensitive tissues. Normally their activity is protected against any mishap by a great many factors of safety, by an abundance of gaseous exchange. When they persist on a minimum, they are continually on a danger line; the slightest mishap may affect the minimum, and the life of these sensitive structures is extinguished, and what is worse

a subsequent abundant supply of internal respiration frequently fails to resuscitate them—artificial respiration fails to resuscitate the animal which was exposed for a long time to the dangers of a minimum respiration.

And here is the general significance of the preservation of the factors of safety during a surgical procedure. Life may seem to continue satisfactorily without the factors of safety as well as with them. But when persisting only on a minimum, life is continually on the borderline of danger; any small accident may destroy it beyond recall. With an abundance of factors of safety small incidents leave no impression, and when a stronger mishap occurs, proper means, early applied, bring recovery—the controlling sensitive tissues are still in a recoverable state. This applies to many surgical conditions. In intrathoracic surgery, under differential pressure, external and internal respiratory processes are deprived of most of their factors of safety, the life of the medulla and of the heart persists throughout the operation on a minimum of the gaseous metabolism. If the operation is terminated without an incident the individual may recover without manifesting any sign that it ever was in danger. If, however, some mishap occurs, be it ever so small, that minimum of internal respiration may become extinguished and life be gone beyond recovery. When this occurs, and it has occurred, surgeons ascribe the fatal result to a vagus effect, a reflex shock and what not else. But the mishap, whatever it may have been, was only the accidental terminal cause; the real cause of the fatal result is to be found in the fact that the life of the patient, under differential pressure, persisted too long on a minimum supply of internal respiration, and medulla and heart lost all their power of resistance. The addition of appliances for artificial respiration to differential chambers will frequently fail to mend the evil; artificial external respiration, and be it ever so efficient, often will not restore the life of the sensitive nerve cells and the heart muscle fibers which, after being exposed for a long time to a mere minimum of internal respiration, lost all their recuperating power.

Summing up in a few words: Under even the best-arranged differential pressure methods, the life of patients with a double pneumothorax persists on a greatly reduced supply of external and internal respiration and is continually exposed to the dangers which may result from it; under properly arranged intratracheal insufflation, however, the patient is supplied with an abundance of external and internal respiration and is at no time in danger from this source.

ANESTHESIA BY INTRATRACHEAL INSUFFLATION

In my first paper[2] on the method of intratracheal insufflation about fifteen months ago my statement with regard to anesthesia read as follows: "On the basis of my observations and experiments it seems to me that the giving of ether by the method of intratracheal insufflation is the safest and the most effective way of administration of this anesthetic." Since making this statement we had considerable experience with the administration of ether by the insufflation method. We used and use it daily, and for all kinds of experimental operations; it is the routine method of anesthesia in our laboratory. And I am willing to state now, and even with greater emphasis than before, that it is the ideal method of administration of ether anesthesia. If properly adjusted and supervised the anesthesia may last for many hours, without the occurrence of serious incidents during the anesthesia or of serious consequences subsequent to it. Eight dogs were kept for twelve hours continuously under profound anesthesia; there were no disturbing incidents during the anesthesia and none subsequent to it. Even in these prolonged anesthesias the animal recovered from them in less than half an hour.

In the numerous experiments of Shaklee and of Githens on the treatment of strychnin poisoning by insufflation, the animals were kept continuously under profound anesthesia for many hours, sometimes as long as eight. The anesthesia by the insufflation method is far superior in many respects to that of the usual method of administration of ether. It is much safer, the anesthesia is much more readily controlled; the animal gets under it more quickly when the ether is turned on and gets more quickly out of the anesthesia when the ether is turned off; it requires only scant supervision, and not much ether is used up. The method offers also the great safety that efficient artificial respiration may be immediately instituted at the first appearance of dangerous or even only of doubtful symptoms, and this merely by turning of a screw clamp or a stopcock. The effects of anesthesia disappear very rapidly and especially so, when after interruption of the anesthesia pure air is insufflated for a few minutes before the removal of the tube.

Of the various studies which we carried on regarding the relation of the insufflation anesthesia to blood-pressure, respiration, etc., I shall mention here very briefly only a few facts. In the first place I wish to make a correction. In my first paper I stated that I did not succeed in killing dogs with ether, when administered by the insufflation method. In recent studies of Dr. Githens and myself on the influence of the anesthesia on blood-pressure and respiration, we found that under certain conditions ether might become fatal even when administered by insufflation. These studies brought to light instructive results. When an animal is brought under the influence of anesthesia under conditions which are just sufficient to make the anesthesia complete, for instance under an insufflation pressure of 30 or 40 mm. of mercury and with an air stream going three-fourths through a bottle containing ether and one-fourth as pure air, the animal will remain in the same excellent state of blood-pressure, respiration, etc., as long as the external conditions remain the same. However, if the conditions change, for instance, if the entire air stream passes through the ether bottle, we may see now the blood-pressure starting to go down, its various undulations gradually disappearing, and the respiration becoming more and more shallow and slow, until it completely ceases. Even then the heart continues to beat regularly and effectively, although the pulse pressure is usually somewhat decreased. If this state is permitted to continue for an hour or longer, the animal cannot be saved any more. However, if twenty or thirty minutes after the spontaneous respiration ceased the former conditions are restored, or still better, the insufflation of entirely pure air is instituted, the blood-pressure begins to rise and the respiration begins to make its appearance, until in a comparatively short time normal and safe conditions prevail again. In these experiments a strong overdose of ether paralyzes first the functions of the medulla and much later that of the heart. Of course these were severe experimental tests and cannot and should not occur in human surgery. Here it should be the rule to reduce the ether as soon as the respiration becomes shallow and slow.

2. Meltzer, S. J.: Med. Record, lxxvii, 477, 1910.

Of the further remarks which I wish to make and which of necessity will have to be extremely brief and aphoristic I shall mention in the first place the important fact that if the intratracheal tube is only of moderate size, the insufflation pressure can be increased considerably without causing any injury whatsoever. Under these conditions *an increase of 30 mm. of mercury in the external pressure may mean an increase of only 1 millimeter within the bronchi.* The increase of pressure will often prove beneficial when the patient shows some cyanosis; the tube might in this case be too small. The increase of pressure might prove useful also in facilitating the anesthesia in very resistant individuals. Such an individual resistance to ether occurs also among animals, but not with that frequency and to that degree as it may be met with in human beings with their goodly number of neurotics and alcoholics. The higher external pressure is the means of driving into the bronchi a larger quantity of ether (and air) in a unit of time. A similar result may be obtained by frequently exerting a slight pressure on the larynx for a second or two; this brings a greater distention of the lungs with all the advantages which are to be derived from it. I may mention here also the facts that the anesthesia is more rapid and more effective, the larger the bottle is which contains the ether and the more ether it contains.

Our studies of chloroform are, so far, not so extensive as those of ether, but we know already a few things about it which ought to be mentioned here. Prolonged anesthesia by chloroform led sometimes to hyperemia and even to inflammation of the lungs. Furthermore, chloroform anesthesia requires careful supervision; it affects readily the functions of the medulla. However, with proper supervision chloroform may be used for shorter operations with perfect confidence and it may be readily employed especially in individuals resistant to ether, at least for the purpose of the induction of the anesthesia.

In using insufflation in human surgery, whether for the purpose of anesthesia or for intrathoracic operations, it ought to be the rule that the continuous air stream should be interrupted five or six times per minute for one or two seconds at a time. From extensive experience we know that these short interruptions, which do not admit any aspiration, constitute a very valuable factor, a factor of safety, in making insufflation safe and efficient. The interruptions help also in recognizing the degree of the distention of the thorax. If the distention is too strong, it is due to too high an external insufflation pressure, which is easily remedied, or the tube is too large. In the latter case, no time should be lost in exchanging the tube for a smaller one. Too little distention is due to the comparative smallness of the tube. In this case, it is not always necessary to exchange the tube for a larger one. Increase in insufflation pressure, which should be done not too abruptly, will frequently remedy the deficiency. In addition, a momentary pressure on the trachea, frequently exercised, does excellent service. The pressure, however, is best applied to the larynx where a slight pressure causes a sufficient distention of the lungs.

The tube must possess a certain degree of rigidity and elasticity. However, care must be exercised in the introduction of the tube. By the use of undue force an abrasion of the mucous membranes of the larynx or trachea might occur, which could lead to a serious emphysema. For human beings the best method of introduction is apparently the one which is now being used by Dr. Elsberg, that is under the guidance of a Jackson direct laryngoscope. I shall not dwell on the methods for providing a continuous air stream and for regulating the anesthesia; they are simple mechanical problems which will be solved variously according to the bent of mind of the various surgeons. The simplest method is the one which I suggested some time ago and which consists of foot bellows for the generation of pressure and of a Wolff's bottle, branching rubber tubings and screw clamps for regulating the anesthesia. In our laboratory we employ a respiration apparatus, which provides pressure for insufflation for several animals at the same time. For human surgery, Elsberg's compact apparatus is surely the best; it was developed with ingenuity and foresight and it works with simplicity and perfection.

I shall add yet the remark that under exceptional circumstances air enters through the esophagus into the stomach. Under these circumstances a stomach-tube, which is easily introduced and which does not interfere in the slightest with the insufflation, remedies promptly this insignificant complication.

Finally I may be permitted to quote here from reports on the use of *insufflation anesthesia in human beings* kindly furnished me by Dr. Charles A. Elsberg of the Mount Sinai Hospital of New York and Dr. Charles H. Peck of the Roosevelt Hospital of New York. Dr. Elsberg, who was the first man to introduce intratracheal insufflation into human surgery and who worked on that problem with ingenuity, scientific enthusiasm and perseverance, used this method in over 125 cases; of these, ten were thoracotomies. There were no pulmonary, bronchial or laryngeal complications. Postoperative vomiting occurred only in four cases. In three cases there was some abdominal rigidity. "All the patients awoke very quickly from the anesthesia and were remarkably comfortable afterward." Dr. Peck, who is surely an unbiassed observer, began to employ insufflation anesthesia, by means of Elsberg's apparatus, about April 21, and reports now (June 7) on thirty-two cases. In twenty-eight cases, he writes, "the anesthesia was ideal; the color was perfect throughout and the respiratory movements quiet and regular." "In four alcoholic males there was some difficulty in keeping the patient quiet and relaxed, not enough, however, to seriously interfere with the operation in any case." "The recovery from the anesthesia has been very quick and quiet with less stupor and discomfort than usual." "None of the cases had postoperative hoarseness, bronchitis or pneumonia or any other postoperative complication which could be attributed to the anesthesia. I have been much struck by the absence of ether shock or depression, especially in the old and the feeble patients." The oldest patient was 74 and the youngest 10 years old. Some of the operations lasted three hours. One patient with perforated duodenal ulcer with peritonitis "vomited profusely during the operation without interfering with the anesthesia in the least or aspirating any of the vomitus." "Twenty-three of the patients had no postoperative vomiting, four vomited once very little, three vomited a few times and two had more prolonged and persistent vomiting, one being a three-hour operation on the glands of the neck and one a case of intestinal obstruction with profuse vomiting, both before and after the operation." Both Elsberg and Peck say that in operations on mouth, pharynx, superior maxilla, ets., "the method was ideal in preventing aspiration of blood and mucus, and securing perfect quiet anesthesia without difficulty." Both point out the value in many

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cases of having the anesthetist out of the operator's way and "that it is much easier to guard against contamination of the operative field." Dr. Peck sums up by saying: "I have seen no ill effects of any kind from the method, and while my experience is still limited, I am convinced that it has many advantages in a variety of conditions, in addition to its special use for thoracic operations."

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TREATMENT OF LOCALIZED APPENDICULAR ABSCESS *

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In a paper[1] read before this Section at the St. Louis meeting last year, Dr. Archibald Maclaren very kindly referred to an article of mine dealing with this subject. Since that time many inquiries have been received concerning the matter, and I have decided to bring the subject before the Section at this time, giving, as briefly as possible, the results of increased experience with the method.

No attempt will be made in this paper to consider the treatment of appendicitis in detail nor will any effort be directed toward the spell-binding oratory so frequently indulged in before this Section, in an effort to fix for all time and all persons, the exact moment most favorable for operation. It is my intention to confine these few remarks to consideration of the question, Should or should we not remove the appendix in practically every case of localized appendicular abscess?

In perusing the literature on this question, or in attendance at the various surgical clinics throughout the country, we find, as probably the most frequently employed plan, the removal of the appendix when it presents itself freely within the confines of the abscess, while in those cases in which it is adherent and buried by the intestinal coils, the operation is limited to simple incision and drainage, leaving the appendix to be removed at some future time. The reason given for the latter course is usually that it is unsafe to separate the adhesions forming the boundary of the abscess, thereby liberating, during the search for the appendix, pus and septic material into the uncontaminated areas of the peritoneum.

This was the course usually employed by me until some three years ago. During the past three years I have operated on 283 cases of appendicular abscess, sharply localized. This list does not include any case in which at operation the general peritoneal cavity was found to be infected, nor those cases of gangrene of the appendix without the formation of a distinct periappendicular abscess.

In this series of cases the appendix was removed in every instance at the first operation whether it could be easily detected within the abscess cavity or whether deeply buried by adhesions. In these 283 cases there occurred three deaths. One patient, a little girl, aged 4, died thirty-six hours after operation; another, a man aged 49, died sixteen days after operation from cardiac thrombosis; and the third, a boy aged 17, died four days following operation from septicemia. There were no deaths from peritonitis.

The ages of the patients included in this series ranged from 10 months to 84 years. The latter case, an old man referred by Dr. Oliver Fisher of Sloan, Iowa, had a large abscess due to a perforated appendix, and is the oldest patient suffering with appendicitis seen by me in an experience of over 3,000 cases operated on.

These results are infinitely better than those I secured under the former plan of treatment in which the appendix was allowed to remain undisturbed in a large proportion of cases.

Since the adoption of the Fowler position and drainage of the peritoneal cavity by means of a large rubber tube inserted to the bottom of the recto-vesical pouch, or cul-de-sac, supplemented by saline proctoclysis, peritonitis has been shorn of its terrors.

It was noticed in those cases of diffuse septic peritonitis due to perforation of the appendix which were treated in this manner, that convalescence was almost uniformly rapid and smooth and without distressing sequelæ. In fact, it soon became a matter of common observation that those patients whose appendices had been removed and in whom the above method of drainage was employed, recovered more rapidly and more frequently than those with localized abscess, which had been merely opened and drained. If, then, we are no longer afraid of diffuse septic peritonitis, why should we hesitate to remove the appendix in all cases? Such considerations later led to the gradual adoption of the plan of systematic removal of the appendix in abscess cases.

As experience in the treatment of these cases increased and the appendix was removed with increasing frequency at the first operation, it was noticed that during search for and removal of the appendix, small pus collections were frequently encountered here and there among the adherent coils of intestine and omentum whose presence had not been suspected, and which would have been overlooked had not the adhesions been separated. Drainage of the larger pus collection would not have reached these smaller hidden septic foci.

It was also noted that in many cases of peri-appendicular abscess which were tightly walled off, even at times high in the pelvis, separation of the adhesions would reveal a large amount of pus or purulent serum in the recto-vesical pouch or cul-de-sac, which would most certainly have been otherwise overlooked. Thus were exposed the reasons for many a secondary operation for so-called secondary abscess.

The free separation of adhesions during the removal of the appendix tends greatly to lessen the danger of postoperative obstruction, which does not occur with nearly the same frequency in cases so treated as in those cases which are merely subjected to incision and drainage of the abscess. The separation of adhesions and the establishing of free communication between the region of the cecum and appendix, formerly occupied by the abscess cavity, and the lowermost pelvic peritoneal fold (the recto-vesical pouch in males, the cul-de-sac in females), permits the best possible drainage to be instituted by the placing of a large split rubber tube carrying a wick of iodoform gauze in the lowermost peritoneal pouch and permitting it to emerge through the lower angle of the wound. This does away with the necessity of multiple drains either of tube or gauze, and thereby lessens to no small extent the tendency to the formation of postoperative adhesions. Drainage instituted as above described removes the necessity for placing either tube or gauze in contact with the cecum at a point where its vitality has been impaired by the infectious process,

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

1. THE JOURNAL A. M. A., June 25, 1910.

and thus is lessened the occurrence of fecal fistulæ, the development of which is frequently encouraged by the ill-advised placing of such drains in contact with an already weakened and diseased cecal wall, with resulting pressure necrosis.

With the patient in Fowler's position, a large rubber tube will drain the lower peritoneal pouch much more rapidly and completely than the region immediately adjacent to the cecum can be so drained, as a tube in the latter position will be more rapidly shut in by limiting adhesions than the former; and through the influence of gravity we secure at once the collection of all septic fluids at the most dependent portion of the peritoneal sac, whence they are rapidly discharged to the surface through the tube before its capacity for drainage has been destroyed by surrounding adhesions.

Because of the rapid free drainage so secured, the tendency to postoperative sepsis manifested by hepatic abscess, pylephlebitis, subphrenic abscess, empyema, etc., is much less marked than in those cases where a leaking appendix is permitted to remain and hourly add its burden of septic and infectious material to a cavity imperfectly drained, because slowly drained, and drained for much too short a time.

The removal of the appendix at a secondary operation is frequently a very difficult procedure because of the density of the surrounding adhesions, and in the majority of instances it will be found much easier to remove it at the first operation and this should now be done rather than subject the patient to a prolonged and often serious second operation.

In my experience the necessity for a second operation following appendicitis with abscess formation in which the first operation consisted merely of incision and drainage, has been noted to arise with much greater frequency than usually stated in text-books. As nearly as I can estimate it occurs in from 25 to 30 per cent. of cases. This one fact is a strong argument in favor of the removal of the appendix at the primary operation.

A few words as to the technic of the operation: The incision is invariably made through the right rectus muscle, splitting the fibers, and the peritoneal cavity freely opened. A small gauze pack is tucked into the upper angle of the wound and so adjusted as to prevent any extravasation of pus toward the liver or diaphragm. Another small pack is tucked in toward the median line from the upper angle of the wound to the lower pelvis to prevent any extravasation toward the left. The abscess cavity is then freely opened with the fingers unless opened by the peritoneal incision, and the pus rapidly mopped up with gauze sponges. The appendix is then exposed and removed. All adhesions separating the abscess cavity from the lower pelvis are now freely separated and the pus or sero-pus, which is usually found in the lower peritoneal pouch, is rapidly mopped up with sponges. A large split rubber tube, from one-half inch to one inch in diameter and carrying a wick of iodoform gauze, is inserted through the lower angle of the wound to the bottom of the recto-vesical pouch or cul-de-sac, the protecting gauze removed and the wound closed down to the tube with interrupted, through and through silkworm sutures. Attention is called to the large size of the tube, as I believe the first hours of drainage are those which count. I had these tubes made to order in 1902, and have employed them ever since for peritoneal drainage.

The patient is then placed in bed, the head of which is elevated at least thirty inches from the floor. The patient is turned sharply on his right side and furnished with a special nurse who is instructed to see that the right-side posture is maintained for at least twenty-four hours. Proctoclysis is immediately begun and continued as long as the individual case requires. Water is allowed at once, but in small quantities. Not more than one ounce at a time and frequently repeated. Morphin is given and repeated whenever necessary to control pain. No nourishment is given for forty-eight hours and then sparingly.

The two hundred and eighty-three cases mentioned above represent but a small portion of peri-appendicular abscesses which have been so treated, as I have been working up to this point for years by gradually increasing the indications for the removal of the appendix in these cases, and they are reported merely because they represent an unbroken series of cases which have been so managed. Since 1902, many patients with diffuse septic peritonitis have been treated by the same form of drainage and increasing experience with its value when so employed seemed to justify the belief that peri-appendicular adhesions may be separated not only with impunity, but under proper precautions, even with benefit.

The method is not advocated for the occasional operator, nor is the claim advanced that it should be invariably employed by men of great experience. However, it is urged that it should be much more frequently employed by competent surgeons than is now the custom, and I believe that the instances in which it is contra-indicated should be very rare indeed.

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SUBPHRENIC ABSCESS THE RESULT OF ACUTE INFLAMMATION OF THE VERMIFORM APPENDIX *

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It is no doubt true, as Jopson[1] has stated, that subphrenic abscess is an uncommon affection at any time of life. Nevertheless, the constantly increasing number of reported cases must be taken to mean that while the affection is uncommon it is not very rare.

Before the era of abdominal surgery, it was generally believed that subphrenic abscess most often arose from disease of the upper abdominal viscera, and that other sources of origin were rare. More extended experience with the inflammatory affections of the abdomen has demonstrated that appendicitis is one of the most frequent causes of subphrenic abscess; that such an abscess is one of the gravest complications of appendiceal disease, and that it is one of the conditions associated with appendicitis most often overlooked.

The principal points to be noted in a consideration of subphrenic abscess complicating appendicitis are:

I. The frequency and incidence as to age, sex, etc.
II. The mode of infection.
III. The anatomy of subphrenic collections arising from disease in the right iliac fossa.
IV. The symptomatology.
V. The treatment.

I. FREQUENCY

In 3,391 consecutive cases of acute appendicitis at the German Hospital, there occurred thirty cases of subphrenic abscess or 0.8 per cent.

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

1. Jopson: Arch. Pediat., 1904, xxi, No. 2.

In 500 consecutive cases of acute appendicitis in children under 14 years of age at the Mary J. Drexel Home, there was one case of subphrenic abscess, or 0.2 per cent.

In the total number of 3,891 cases of acute appendicitis in adults and children, there were thirty-one cases of subphrenic abscess, or 0.7 per cent.

Sir Frederick Treves[2] in 1,000 cases of acute appendicitis had six instances of subphrenic abscess. Kelly and Hurdon[3] quote 410 consecutive autopsies at the Boston City Hospital. Of these cases there were thirteen of subphrenic abscess, seven of which were appendiceal in origin.

Lance[4] collected the records of 943 cases of subphrenic abscess, and of these 222 were due to acute appendicitis.

Piquand[5] collected 890 cases of subphrenic abscess, and of these 191 were due to appendiceal disease.

From these statistics we may safely draw the following inferences:

1. Subphrenic abscess following appendicitis is more common than formerly was supposed.

2. It occurs in from 0.5 per cent. to 1 per cent. of all cases of acute appendicitis.

The exact ratio of subphrenic abscess due to appendicitis and cases due to other causes in our own experience at the German Hospital, I have been unable to determine, but a fairly thorough examination of the records, leads to the conclusion that appendicitis outranked all other causes combined. It is true that there were far more cases of appendicitis treated than of any other intra-abdominal condition, and the preponderance, I believe, was more marked than in most general hospitals or surgical clinics.

II. MODE OF INFECTION

The mode of infection of the subdiaphragmatic spaces from disease of the appendix has been most carefully studied. Barnard,[6] Lance,[4] and Cosentino[7] have gone into the question most thoroughly; the first from the anatomic side; the second from the clinical; and the third from the clinical and experimental sides. Their classifications and views as to the relative importance of each method of infection vary somewhat, but they agree that the infection may occur:

1. As a part of the general peritonitis—these cases are not to be included in a consideration of true localized subphrenic abscess.

2. By direct extension up the lower peritoneal fossæ.

3. Through the medium of the portal vein (Barnard and Lance). This, in our experience, is a very rare occurrence, being found in but two of twenty-one autopsies at the German Hospital in which subphrenic abscess was present.

4. By lymphatic extension (a) up the right retroperitoneal cellular tissue or (b) up the lymphatics around the deep epigastric artery to the falciform ligament. (Barnard.)

I believe that the second of these methods of approach is by far the most frequent. Cosentino also has laid especial stress on this as a result of his anatomic investigations and experiments with the course taken by various fluids when introduced into different localities in the abdominal cavity.

An interesting assertion in this connection is that of Lance,[4] that in the retroperitoneal form of infection, early operation will not prevent the subsequent formation of infected foci as a result of the extension in the cellular tissue. It is perhaps too broad a statement to make, that operation, however early, will not prevent this diffusion. But I have found that cases in which such infection takes place are among the most virulent and fatal of all cases of appendicitis and, when the retroperitoneal cellular and lymphatic tissues have been thoroughly invaded by the infectious bacteria, death from extension or toxemia is sure to occur.

Some of the French authors credit the appendix with a double lymph supply and state that the lymphatics of the appendix, in addition to draining to the glands at the ileocolic junction, have a close communication with the lymphatics of the ascending colon. If this be true it would furnish perhaps some reason for the frequency of the retroperitoneal origin of subphrenic abscess following appendicitis.

The infection of the subphrenic fossæ by the general circulation is mentioned by several authors as a theoretical possibility, but there has been no instance reported in which this seems to have been the sequence of events.

The extension by means of lymphatics about the deep and superficial epigastric arteries, is supported by one case cited by Barnard[6] and this he considers as not being definitely proven.

Lance[4] mentions as predisposing causes for the formation of a subphrenic abscess, several locations of the appendix, notably those in which the appendix runs high behind the colon, is retrocecal or retroperitoneal. It is perfectly evident that any one of these conditions must tend to render subphrenic abscess more likely.

III. ANATOMY

For all methods of formation of subdiaphragmatic collections following appendicitis, except that by means of the retrocecal retroperitoneal cellular tissue, we must find some anatomic explanation, for it would seem unlikely that infectious pus should gravitate in that direction. No better statement of the conditions favoring such an extension can be given than that of Barnard. He says:[6]

> The recent investigations of surgeons in connection with the treatment of diffuse peritonitis have shown that the main cause of subphrenic accumulation is gravitation. As a patient lies flat on his back in bed, the posterior extremity of his subphrenic spaces are only separated from the mattress by the skin, the ribs and the diaphragm, which together do not make up much more than ½ inch of tissues. The pouch of Douglas or the rectovesical pouch in the male, in a similar way are only separated from the mattress by the skin, the coccyx, and the width of the flattened rectum. Between these two dependent pouches the thick muscles and tissues of the loins, with the kidneys and the perinephric fat, rise as two elevated mounds. When the general peritoneum is infected, a profuse flow of serum is poured out, and this gravitates upward into the subphrenic spaces and downward into the pelvic pouch. If the patient is well propped on pillows or is supported by an efficient bed rest (Fowler's position) fluids will run from beneath the diaphragm over the loin mound into the pelvic pouch, from which it may be drawn off by a tube passed to the bottom of that fossa, from a puncture above the pubes. This method is effective in preventing subphrenic abscess only while the exudate is diffused. When it is shut in and localized, special measures must be adopted to evacuate it.

The French authors also lay great stress on these anatomic relations—indeed, the gutter formed by the colon and the abdominal wall on the right side is by them named the right parietocolic sinus (of Lafeyre).

The most minute and painstaking investigation of the anatomy of subphrenic abscess has been made by Bar-

2. Treves, F.: Operative Surgery, London, 1905.
3. Kelly and Hurdon: Appendicitis, 1905.
4. Lance: Gaz. d. Hôp. Par., 1909, lxxxvii, 63, 99.
5. Piquand: Rev. de chir., 1909, xxxix, 150 et seq.
6. Barnard: Brit. Med. Jour., 1908, 1 371.
7. Cosentino: Policlin., Rome, 1907, xiv, sez. chir., pp. 251, 386.

nard.[8] He divides all subphrenic abscesses according to their location as regards the falciform and lateral ligaments of the liver into:

A. Intraperitoneal.
- 1. Right. { I. Anterior. II. Posterior.
- 2. Left. { III. Anterior. IV. Posterior.

B. Extraperitoneal. { V. Right. VI. Left.

A right anterior intraperitoneal abscess is one situated between the upper surface of the right lobe of the liver and the diaphragm.

A right posterior intraperitoneal abscess is one in the subhepatic pouch, a pyramidal space bounded laterally by the abdominal parietes, in front by the liver and gall-bladder, posteriorly by the abdominal parietes and having its apex formed by the upward slope of the margin of the left lobe of the liver.

A left anterior intraperitoneal subphrenic abscess or perisplenic abscess lies in the fossa bounded by the diaphragm above, the left lobe of the liver below and to the right, and the spleen to the left. It is bounded sharply to the right by the falciform ligament. Barnard describes a fossa lying between the vertebral column, the descending colon and roofed in by the mesentery by which the fossa first described communicates with the rectovesical or recto-uterine pouch.

A left posterior intraperitoneal subphrenic abscess is one situated in the lesser peritoneal cavity.

A right extraperitoneal subphrenic abscess is one formed in the cellular space between the layers of the coronary and other peritoneal ligaments of the liver.

A left extraperitoneal subphrenic abscess is one formed in the retroperitoneal cellular tissue of the left loin.

In Barnes' experience in twelve cases of appendiceal subphrenic abscess practically all were on the right side.

I have found it impossible so closely to determine the exact anatomic variety of subphrenic abscesses as has seemed possible to some investigators. They may all be grouped into those of the right and left, anterior or posterior. The intraperitoneal or extraperitoneal origin is often impossible to determine.

Of thirty-one cases at the German Hospital:

29 were on the right side only.
1 was double right and left.
1 was on the left side only.

These figures would tend to show that in most instances the extension to a subphrenic fossa from a diseased appendix is not from an accompanying peritonitis in the pelvic basin, but arises directly from the original appendiceal focus.

Numerous isolated instances of left subphrenic abscess following appendicitis have been reported.

It is, moreover, not absolutely determined that an abscess of extraperitoneal origin cannot in every way come to assume the characteristics of one of the intraperitoneal variety.

It is to my mind a refinement of diagnosis at present impracticable of accomplishment, for any one to determine definitely the variety of subphrenic abscess before operation. As will be seen later, we are fortunate indeed always to diagnose even the existence of a subphrenic abscess.

The usual contributing factors in reference to subphrenic abscess, complicating appendicitis need not be discussed at length. The bacteriology of the complicating infection is that of the original diseased focus. The incidence as to age is identical with the range of ages in appendicitis. Statistics would seem to show that subphrenic abscess is rarer in appendicitis in children. But of eight cases from the Pennsylvania Episcopal and University Hospitals in the past two years, four occurred in patients 15 years of age and under.

Pathologically, subphrenic abscess in association with appendicitis falls into three groups:

1. Those occurring or found at operation, i. e., an immediate and primary complication of the disease.

2. Those making themselves manifest as late or postoperative sequelæ during the postoperative stadium.

3. Cases occurring a long time after the primary infection.

	1. Primary	2. Postoperative	3. Late	Total
German Hospital	18	11	2	31
Collected cases	1	6	1	8
Mary Drexel Home....	1	..	..	1
	20	17	3	40

IV. THE SYMPTOMATOLOGY

The mode of onset of the symptoms of subphrenic abscess must vary with the time of its occurrence.

It has been my experience that when the condition has been found at the first operation, it has often been not definitely diagnosed. The diagnosis of appendicitis with abscess is made, but the definite localization of a subphrenic collection has been overlooked. This, however, is not always a matter of such grave importance, since at the operation the collection should be discovered, particularly if it be one formed by direct extension. There can be no doubt that, on the other hand, certain isolated and well walled-off abscesses which were present at the first operation, are at times overlooked. In the series of thirty-one cases at the German Hospital, there was one undoubted instance of this and probably one or two others.

The collection occurring as postoperative sequelæ are those in which our diagnostic powers are taxed to the utmost.

There may be two methods of onset: (a) sudden and (b) insidious.

Many surgeons have stated it as their experience that subphrenic abscess after appendicitis most often makes itself known quite suddenly. As regards the major symptoms this is no doubt true. Yet, it has been my experience, even in those cases in which the symptoms of the secondary collection came on with apparent suddenness, that the convalescence previously had not been entirely uneventful. It is quite true that the onset of pleural pain, high fever and delirium is sudden, but it appears more so if the previous malaise without symptoms of definite character has been more or less slighted.

Jopson[8] has particularly laid stress on this point. He says that "a moderate continuous elevation of the temperature, a pulse little if any above the normal, an entire absence of abdominal symptoms, and a physical expression of comparative comfort and well-being are to be recognized as not inconsistent with the presence of a subphrenic abscess."

Barnard's statement, therefore, that all of his twelve cases of appendiceal subphrenic abscess had an acute onset, must be considered as referring to the onset of local symptoms and of marked sepsis.

In giving, therefore, a list of symptoms of subphrenic abscess, I should place first sepsis following an operation

8 Ann. Surg., 1910, vii, 427.

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for appendicitis without evidence of its cause, the primary incision progressing favorably.

Second in importance to the symptoms of general sepsis, we find the signs of pulmonary involvement at the base of the lungs. The most valuable of these indications is the presence of a more or less marked area of dulness. In addition to this, we often find the other indications of a collection in the pleural cavity, i. e., lessened breath sounds and fremitus. In several instances in the series of cases at the German Hospital, the dulness and other physical signs have been noted anteriorly, and in one case the first indication of trouble was in the left axillary space. Pleural friction sounds are at times noted as in the case last mentioned.

The exact condition of the lung and pleural space above a subphrenic abscess, is most difficult of exact determination. The dulness and changes in the resonance and fremitus are accounted for by the pressure upward on the vault of the diaphragm. But the comparative frequency of pleural friction, cough and the occasional early occurrence of râles would seem to indicate that in many instances of subdiaphragmatic abscess there is early involvement of the pleural cavities themselves, and indirectly of the lung tissue. It is fortunate that these changes give rise to empyema as rarely as they do. Of twenty-one fatal cases coming to autopsy but five showed purulent pleurisy, and one a pleurisy with exudate not purulent. Two of these five cases showed actual perforation of the diaphragm.

The abdominal symptoms of subphrenic abscess, when present, are those of any collection within the abdomen. They are the presence of a mass; pain, and tenderness; Barnard found that in thirty-three of his seventy-seven cases a mass formed by the abscess itself was noted in the abdomen. This, however, includes cases of subphrenic abscess due to all causes. In my own experience with this form of abscess following appendicitis, the proportion of cases in which there was an abdominal swelling has been decidedly less. This perhaps is due to the fact that, since the infection is oftenest by direct extension along the lumbar fossa, the abscess is most often found deep under the liver or else above it and concealed between the upper liver surface and the vault of the diaphragm. In the latter class of cases there may be some slight bulging of the chest-wall on the infected side.

The pain encountered is localized to the area of infection, but often not definitely confined to a limited area. Indeed, the pain oftenest complained of is a pleural pain. In some cases, the onset is such that a pleurisy seems primary and the subdiaphragmatic abscess secondary. Tenderness will be encountered when the abscess presents at an accessible part of the abdomen—often it is elicited only by quite deep palpation.

Needling is an important aid in localizing suspected collections of pus beneath the diaphragm, as in those above it. Barnard recommends that it be done in a most systematic and thorough way and only under complete anesthesia. With the latter provision I cannot agree. Even in the presence of pus, our attempts at aspiration may be negative and while a positive finding confirms the diagnosis, a negative by no means sets it aside.

Mention has been made of those cases of subphrenic abscess in which the onset is long delayed. Such an instance is Case 19 of this series, in which the onset of the disease occurred a year after a primary appendiceal infection. In a case reported by Ashhurst,[9] the interval was four months, and Meisel[10] has reported an instance in which there is no doubt that a subphrenic abscess occurred one and one-half years after a primary appendicitis. In these cases, the onset is usually more or less sudden. There is a sudden awaking of a long-latent infectious focus, and the event partakes oftenest of the nature of a grave abdominal catastrophe as in the instances quoted.

The diagnosis of subphrenic abscess being a matter of such considerable difficulty, it is to be expected that the differential diagnosis is one hardly definable by strict rules. Most often the differentiation is between a subdiaphragmatic and a supradiaphragmatic condition. An important guide is the history of an antecedent abdominal condition apt to give rise to a subphrenic collection, even if the two illnesses have been separated by a considerable interval of time. How difficult this distinction is may be gathered from the numerous instances Barnard cites, in which it was impossible to distinguish between the two conditions. It is a well-known fact that intrathoracic conditions may simulate almost any acute abdominal condition in their symptomatology. How probable it is, then, that a condition localized immediately beneath the pleural cavities and separated from them by but little tissue, should give rise to symptoms practically identical to those of a purulent or merely serous pleurisy!

Only the most careful study of individual cases will give us even an approach to correct diagnosis. Of the other conditions most frequently confused with subphrenic abscess, it is necessary only to mention hepatic infection following operation. The symptoms of this condition are also often overlooked. Two authors give what they consider distinguishing features. Besredka states that there is never jaundice in uncomplicated subphrenic abscess and that the fever is not so high in liver infections. Jullard states that in liver infections the leukocytosis is higher than in any other abdominal condition—a by no means infallible sign, as in isolated instances the white blood-count has been excessive also in subphrenic abscess.

How difficult may be the diagnosis of subphrenic abscess is shown by Case 31, reported from the Mary Drexel Home. In this instance the symptoms pointed to the presence of a meningitis, and lumbar puncture gave turbid fluid. Chest dulness finally developed and pus was obtained on puncture, and the subphrenic condition made itself evident.

V. TREATMENT

The treatment of subphrenic abscess following appendicitis is that of any other collection within the abdominal cavity.

It may not be out of place here to mention certain factors which may influence the formation of subphrenic abscess and which must be considered at the primary operation.

Primarily, when there is a localized collection, it is essential to explore it as to its extent and direction. When it is drained, the drainage must be sufficient.

When pelvic pus is present, the pelvis must be drained, no matter how slight the amount of fluid may be.

If there be a diffuse peritonitis, it is essential that the patient be placed in a semisitting or Fowler position to facilitate the gravitation of septic fluids away from the diaphragmatic area.

9. Ashhurst: Tr. Philadelphia Acad. Surg., 1910, xlii, 154.

10. München med. Wchnschr., 1909, lvi, 1411.

The appendix should be removed whenever possible, to prevent its acting later as a source of infection.

The operations for subphrenic abscess may be classed in three groups:

1. The Abdominal or Loin Incision: This is applicable to those cases in which there is definite pointing of the abscess either in the upper abdominal area or in the loin. It must be placed so that we can procure the maximum of exposure to the diseased area. The further procedure is that of any abdominal abscess.

2. The Subpleural Route: This incision consists of resection of the tenth rib in the midaxillary line and traversing the diaphragm below the pleural reflection.

3. The Transpleural Route: According to the probable location of the pus, one or two ribs are resected, the pleura opened and the collection evacuated through the pleural base. The only point of importance in this operation is the suturing of the two layers of the pleura after incision before opening the subdiaphragmatic abscess—this to prevent diffusion of infectious material throughout the pleural cavity.

In all of these methods of procedure there must be drainage by tubes of sufficient caliber and rigidity to insure the evacuation of all infectious fluids.

Case 1.—J. D. Death April 16, 1901. Diagnosis, acute appendicitis. Incision about 8 inches long made through the right rectus. Intestines showed evidence of diffused peritonitis. General cavity walled off with gauze; appendix found up under the liver, gangrenous and perforated. Small quantity of pus present; some pus between the diaphragm and the liver. Appendix removed.

Case 2.—J. P., aged 23. Death March 13, 1902. Diagnosis, acute appendicitis. At operation the following note made: "Secondary abscess up near the liver."

Case 3.—F. E. W., aged 16. Death July 13, 1902. Diagnosis, acute appendicitis. Incision through the right rectus muscle; appendix outer side of the cecum; gangrenous and perforated. Abscess cavity extended up underneath the liver, and there were numerous adhesions in the locality. Appendix removed. Drainage; one piece of gauze extended up as high as the liver.

Case 4.—J. G. R., aged 52. Death Dec. 13, 1902. Incision 5 inches long in the right linea semilunaris over a mass about 2 inches by 4 inches, which can be palpated under ether. Appendix found covered with a large mass of exudate to the outer side of the cecum and ascending colon. Mass extending almost to the liver margin. Fifteen days after operation, sclera yellow, tenderness over the liver, with edema over the right costal margin. Very weak. Two days later: "Liver tenderness still present." No necropsy.

Case 5.—Daniel J. S., recovery, April 30, 1904. Diagnosis, acute appendicitis. At operation the following noted: Incision 20 cm. long, along the outer border of the rectus (right); omentum found adherent to the parietal peritoneum; bowels bound together generally by numerous adhesions; general peritoneum walled off by pads and the adhesions freed in the right iliac fossa; the appendix not found in the right iliac fossa.

Then the ascending colon was freed from adhesions almost up to the liver. To the outer side of the ascending colon just below the liver, a small pocket of pus was opened. This was swabbed out and a fecal concretion was found bound up in a mass of adhesions and exudate.

Case 6.—Cora L. Recovery May 27, 1904. Diagnosis, appendiceal abscess. At operation, March 22, 1904: Incision 5 inches long through the upper right rectus; edema of the peritoneum, on opening of which a large amount of pus escaped. Intestines and the under surface of the liver protected by gauze pads. Free pus welled up from the flank. Appendix not sought for; neither was the gall-bladder. Six pieces of gauze inserted for drainage; two pieces in the flank; two pieces under the liver; and two pieces to wall off the cecum and the ascending colon.

April 11, patient had an attack of right-sided pleurisy.

May 9, the tract extending back under the skin was laid open. It was found to communicate with another tract in which a rubber tube 15 cm. long was placed. This tube extended upward, but whether above the liver could not be determined.

May 27, patient discharged. Sinus seemed to be closing from the bottom.

Case 7.—J. B. C. Death March 11, 1905. Diagnosis, acute appendicitis. At operation the appendix found high up on the cecum and beneath the right lobe of the liver. No abscess. The appendix semigangrenous.

Before operation note was made of the tenderness of palpation over the upper part of the right iliac region. Postmortem showed a feeble attempt to wall off the infected area and general peritonitis.

Case 8.—F. W., aged 23. Death April 2, 1905. Diagnosis, acute appendicitis. At operation the appendix found and removed, also abscess around it.

At second operation "peritoneum opened and adhesions found between the gall-bladder and the liver; great omentum and hepatic flexure of the colon. These adhesions were broken up and a small quantity of pus oozed from the outer and under side of the liver margin. Pus was traced and found a large abscess the size of an orange between the liver and the diaphragm which was evacuated. Drain with tube and gauze."

The patient had four operations before he died: (1) for appendicitis; (2) for subdiaphragmatic abscess; (3) gastroenterostomy and entero-enterostomy; (4) iliosigmoidostomy for obstruction.

Case 9.—E. M., aged 26. Death April 24, 1905. Diagnosis, acute appendicitis; abscess. At post-mortem, a subphrenic abscess found.

Note from the post-mortem: "Adhesions separated and the appendix found 11.5 cm. in length pointing directly upward towards the liver and lying beneath the abscess cavity. Appendix gangrenous at the tip." On lifting up the colon and separating the adhesions a large abscess was found extending upward beneath the liver and containing about 250 c.c. of thick, yellowish pus.

Case 10.—C. F., aged 15. Death July 20, 1905. Diagnosis, acute appendicitis. Post-mortem findings: "Large abscess beneath the liver entirely walled off."

At operation the appendix had been removed and the abscess drained.

Case 11.—Alice H., aged 21. Death Aug. 7, 1905. Diagnosis, acute appendicitis. At post-mortem subdiaphragmatic abscess found. At operation a counter incision in the loin made for drainage. First incision was oblique. Appendix not found at operation. Two weeks after operation the patient began to expectorate pus.

Post-mortem notes: "Region of the appendix showed a plastic peritonitis. There is a large abscess between the right lobe of the liver and the diaphragm which has ruptured through the diaphragm into the right pleural cavity and then into the lung which shows septic bronchopneumonia."

Case 12.—Magdeline H., aged 32. Death Aug. 10, 1905. Diagnosis, acute appendicitis. On examination, great tenderness between McBurney's point and the right costal margin. At operation the appendix found high up beneath the liver, gangrenous at the tip and perforated. Counter-incision made in the midaxillary line to the right of the upper angle of the original incision. Just before death, tenderness noted below the liver. At post-mortem, an abscess found to the outer side of the liver.

Case 13.—Septimus A. K., aged 26, Death, 1905. Diagnosis, acute appendicitis with abscess. Appendix found pointing upward, gangrenous and perforated; foul-smelling whitish pus escaping from the abscess to the outer side of the cecum. At post-mortem a secondary abscess found beneath the liver.

Case 14.—Katharine A. Death May 1, 1905. Diagnosis, acute appendicitis, and subphrenic abscess. Noted at operation. In the examination of the patient the following note is made: Tenderness present; most marked just below the costal border, anterior axillary line, right side. At post-mortem examination a subphrenic abscess and a lobar pneumonia of the

right lung found. Appendix removed; found pointing toward the liver. The appendix was gangrenous.

CASE 15.—Samuel S. Death Dec. 17, 1905. Diagnosis, acute appendicitis; subdiaphragmatic abscess found at post-mortem. On physical examination tenderness noted in the right flank No tenderness on the left side. At operation an appendiceal abscess found. Post-mortem: Perforation of the appendix at the site of the fecal concretion. Large abscess walled off and located beneath the liver and between the liver and the diaphragm. No evidence of general peritonitis. Incision through right semilunar line.

CASE 16.—Margaret P., aged 43. Recovery March 29, 1906. Diagnosis, acute appendicitis with abscess. At the first operation, the appendix removed. No mention of any subdiaphragmatic abscess. At the second operation, the incision made through the right rectus to the costal margin. Abscess evacuated outer and under surface of the liver.

CASE 17.—Thomas F. A. Death April 19, 1906. Diagnosis, acute appendicitis. At operation the appendix found postcecal, gangrenous and perforated. Free pus in the peritoneal cavity. Post-mortem note: Large purulent collection around the liver and on the left side beneath the transverse colon. General purulent peritonitis.

CASE 18.—Lena E. Recovery May 13, 1907. Diagnosis, acute appendicitis. Extraperitoneal incision. Peritoneum thickened and congested. Opening the peritoneum which bulged into the wound, large amount of free, foul-smelling pus escaped; carefully wiped out. Appendix sought for. Finger run up outside of cecum toward the liver. Large amount of free pus found here and evacuated. More pus escaped in manipulating down toward the pelvis. Appendix removed. Second operation for fecal fistula.

CASE 19.—Nicholas B, aged 19. Recovery June 23, 1907. This patient was in the hospital in March. The case was diagnosed as chronic appendicitis and the patient was operated on for that. The appendix was removed and uneventful recovery resulted.

In the history of the second admission is noted the following: "One year began having pain in the right lumbar region, coming once or twice a week, running around to the right abdomen, at times to the testicle and now it goes down the thigh. For a week after the operation, the patient was relieved but on the day of discharge he felt his old pain. Does not vomit. Never passed bloody urine; no gravel, but he claims he passed crystals. At times his urine was very dirty-looking. Makes urine twice at nights. Often has stoppage of the stream during the act. Since admission, he has had pain in the left lumbar region similar to that in the right side save not transmitted to the abdomen."

Physical examination notes the following: "Posteriorly below the angle of the right scapula is a prominence the size of the palm, tender to palpation. Spine negative. A very tender point in the midaxillary line just below the costal margin." At operation, incision over the tenth rib; resection of this rib. A large amount of bloody semipurulent material was evacuated. Origin was not discovered; seemed to come from under the surface of the right lower lobe of the liver." Patient received great relief from the operation and made a rapid uneventful recovery.

CASE 20.—Dr. V. Death March 6, 1908. Diagnosis, acute appendicitis. Began with diarrhea. Stools a bright yellow, frothy, with a little odor.

Patient vomited and was "bilious." On the day before admission he had sudden severe agonizing pain shooting from the right lumbar region around to the inguinal region and up the anterior and lateral aspect of the chest. Taking breath at this time caused severe pain. Patient had cold sweat at time of pain but no chill. Resonance was impaired over the right chest. Two inches above the normal liver dulness, there was flatness.

Post-mortem notes: Gangrenous appendix which had sloughed off. Extraperitoneal and subdiaphragmatic abscess. Extending up to the diaphragm there was a pus cavity between the right lobe of the liver and the diaphragm, which contained about 50 c.c. of yellow pus. Right diaphragmatic pleurisy. Lung showed no noteworthy changes.

CASE 21.—George F. Death Oct. 30, 1908. Diagnosis, subdiaphragmatic abscess. About one year previously the patient had an attack of acute appendicitis and was operated at another hospital. He had drainage. After the operation he was all right. He had some trouble with his stomach.

Present illness began about six weeks before with severe cramps in the abdomen which required morphin. The pain subsided and the patient had a soreness in the abdomen. He did not vomit at first but has several times since then. Did not vomit the food he had eaten but vomited a greenish fluid. Bowels were very constipated; appetite fair and patient has had no trouble in urinating.

Physical examination: Abdomen moderately distended; very rigid in the epigastrium and the left hypochondrium. In the left side in the costal margin was felt a mass on deep palpation somewhat tender and immovable. No tenderness over the gall bladder.

Operation: Incision in the upper abdomen through the right rectus down to the peritoneum. Peritoneum opened and gall-bladder exposed. No lesion in the stomach. Stomach was lifted up and underneath the liver was evacuated an abscess containing pus and gas. Intestines packed away. Abscess evacuated and two pieces of gauze introduced. After notes: Patient developed a severe cough with a foul-smelling expectoration (purulent). Examination of the left axilla showed signs of cavity formation. Needle introduced and pus was obtained. Patient gradually became more and more septic and died.

CASE 22.—Henry M. Death June 12, 1909. Diagnosis, acute appendicitis. At first operation the appendix was removed and the abscess drained. Appendix was gangrenous and perforated. Four weeks later patient noticed a dulness in the left axillary line, beginning at the transnipple line. There was pleural friction here; absence of breath sounds over this area; no fremitus, more tender in the splenic region.

At operation: Incision over the tenth rib in the axillary line; resection of this rib (1½ inches); pleura and diaphragm perforated with the finger and a large amount (500 c.c.) bloody pus escaped coming from below the diaphragm and from around the spleen. Many recent pleural adhesions about the base. Drained, etc. Third operation ten days later. Resection of the seventh rib. At first no pus was located; later a subdiaphragmatic abscess was located and the thick yellow pus evacuated. (In the notes there is no mention of the incision being right or left but from the previous mention of the dulness in the left axilla, I presume that the two abscesses are in the left; also because the spleen is mentioned.)

CASE 23.—Oliver M., aged 17. Death July 14, 1909. Diagnosis, acute appendicitis. At operation appendix found behind the cecum. The appendix removed. Pus present. One month after operation patient was troubled with pain in the right chest with dulness and distant breath sounds for one week. Aspirated, blood but no pus. Later the patient became delirious. One week later the right chest was aspirated and pus found.

Operation: Incision over the ninth rib; part of this rib removed and about 500 c.c. of thin pus drawn off. Later 2,000 c.c. of similar fluid was removed from the cavity. Note of July 14, 1909: "No post-mortem but lesion considered to have been a subdiaphragmatic abscess with rupture into the pleura."

CASE 24.—Moritz H., aged 65. Death March 10, 1910. This patient was admitted to the medical wards, the case being diagnosed as carcinoma of the cecum. Note was made that the patient was simple-minded and did not answer questions sensibly. Patient had not been well for a couple of years, but not seemingly sick until six months previously, when a profuse diarrhea began which lasted during this illness. Patient had noticed a mass in the lower right side of his abdomen; a double direct hernia has also given him trouble. (From his daughter it was learned that he had had a definite attack of pain in the abdomen about one year ago.)

Examination: Liver dulness began at the top of the fifth rib and extended below the costal margin for a distance of 1.5 c.c. Liver was smooth and the edge was not easily palpable. In the right lower abdomen was to be felt a mass of

moderate density, fixed. It did not move on deep respiration. Tympany was elicited in front of it. It was tender and painful on palpation. There was hernia on each side, not complete.

Patient died of edema of the lungs. The necropsy was performed by Dr. Kelly and the diagnosis of abscess made. At post-mortem there was found a large abscess in the region of the appendix, one around the liver and pancreas and one around the spleen, all old processes and all walled off.

CASE 25.—Michael McC., aged 44. Recovery May 26, 1910. Diagnosis, acute appendicitis with abscess. At operation the abscess cavity found extending to the diaphragm; part of the tenth rib resected and the abscess drained; a loin incision made and one up right rectus; the two connected. "Abscess found postcecal and extended to the diaphragm." Vaccine treatment helped to heal in this case.

CASE 26.—Lewis E. Recovery Dec. 2, 1910. Diagnosis, acute appendicitis with abscess. At operation, appendix was found lying in thick yellow pus. The appendix removed; incision was enlarged upwards; subhepatic fossa covered with exudate. Two pieces of gauze carried to the fossa.

CASE 27.—Harry H., aged 23. Death Dec. 9, 1910. Diagnosis, subdiaphragmatic abscess. Operation: (1) Straight incision. Pus found, subhepatic; (2) loin incision and pus found, subdiaphragmatic; (3) incision in the tenth interspace and much pus escaped. Appendix found retrocecal, gangrenous and perforated, extending to the subhepatic fossa; removed.

CASE 28.—George E., aged 49. Death Dec. 28, 1910. Diagnosis, subdiaphragmatic abscess. Pain in the lower abdomen right side. One day's duration. Incision in the eighth interspace; resection of the ninth rib; pleural effusion. Diaphragm pierced, evacuating a subdiaphragmatic abscess. On Dec. 25, 1910, empyema tapped and 500 c.c. of foul pus drained.

CASE 29.—William H. M. Recovery Dec. 28, 1910. Diagnosis, subdiaphragmatic abscess. Pain under the right costal border. Pain for two weeks in the right subdiaphragmatic region. Patient sick for four weeks. Incision in the postaxillary line and 5 c.c. of the ninth rib resected. Nothing in the pleural cavity. Diaphragm opened and pus evacuated.

CASE 30.—Walter C. Recovery Jan. 15, 1911. Diagnosis, acute appendicitis. At operation a right-sided subdiaphragmatic abscess was found. Pain in the abdomen and distention. Three days' duration. No pain in the costal margin. Dulness in the upper right abdominal quadrant. Operation: loin incision; appendix gangrenous, perforated and amputated. Subdiaphragmatic abscess found and drained.

CASE 31.—Emma K., aged 10. Death April 13, 1910. Family and previous medical history negative. No history of previous appendiceal attacks. Patient admitted to the Children's Hospital of the Mary J. Drexel Home on March 19, 1911. The attack began the day previous suddenly at school after eating light breakfast. Patient had severe abdominal pain and projectile vomiting. There was restlessness which passed almost immediately (in a few hours) into semiconsciousness and later complete unconsciousness. There was violent delirium. The next day the temperature rose to 104; respiration 24; pulse 128.

On admission the child was violently delirious. She was lying on the left side with her head drawn back; thighs (both) flexed on the abdomen; legs flexed on the thighs. The patient was restless and irritable. Every fifteen minutes she would have a general clonic convulsion. Meningitic cry present. The fingers were tightened into the palms during these attacks. Examination at that time showed heart and lungs negative. The abdomenal walls were rigid but not distended, and there was apparently great tenderness all over the abdomen, more marked in the right lower quadrant. Knee-jerks were absent; no ankle-clonus. Babinski and Kernig positive. Slight opisthotons. Lumbar puncture showed tension of fluid very low, 10 c.c. obtained of cloudy fluid. Examination revealed marked increase in polynuclears; no increase in albumin; 15 c.c. of Flexner's serum injected.

March 20, 1910: Day after admission. Temperature normal; child rational and comfortable; abdomen relaxed and not tender

March 21: High fever all day; temperature 105; respiration 40; pulse 130—irregular in type. Vomiting frequent; regurgitation of bile. The whole abdomen was very tender. Patient had five loose, watery, yellow stools. No rigidity of the neck. No exaggeration of knee-jerks; no clonus; right ear discharging; left tympanic membrane, red but not bulging. Was punctured by Dr. Bliss. Surgeons decided peritonitis was not present and advised against operation. Similar puncture 8:30 p. m.; 11 c.c. turbid red serum obtained; 15 c.c. antimeningitic serum injected.

March 25: Temperature again elevated; child very ill; abdomen distended and generally rigid; vomiting has ceased; bowels greenish and frequent. Spot of dulness obtained over the base of the right lung, with marked resistance to finger and consolidation was suspected. Breath sounds not increased.

March 27: Condition better; abdomen tender but soft. Tenderness more marked in upper right quadrant. Examination still showed spots of dulness in chest. Temperature 103; pulse 120; respiration 40. Dr. J. B. Deaver advised against operation when brought into consultation with Dr. Hand and Dr. H. C. Deaver.

March 29: Temperature lower, 102; respiration 44; pulse 116. Physical signs show same area of dulness.

March 31: Child's general condition seems much improved. Chest condition reveals dulness extending downward from the seventh interspace, in postaxillary line; breath sounds very distant. No edema or bulging of interspaces. Temperature 100, pulse 108, respiration 44.

April 2: Needle introduced in the eighth interspace in postaxillary line downward and forward 4 inches. Pus obtained. Child somewhat emaciated. Liver could not be palpated below costal border. Abdomen somewhat distended but no tenderness or rigidity.

April 3: Operation: Dr. H. C. Deaver made incision over the seventh rib. Diagnosis, empyema. Rib resected; the pleural cavity explored; small amount of sero-pus found; finger introduced downward through the diaphragm and a large subdiaphragmatic abscess evacuated, probably 2 pints of foul-smelling pus. Diaphragm was then stitched to the muscle and pleura, so as to isolate pleural cavity. Large drainage-tube inserted into the abscess and a tube of smaller caliber inserted into the pleural cavity. Culture of pus showed colon bacillus.

April 13: Child died suddenly after dressing of cardiac syncope. No post-mortem obtainable.

Collateral Findings.—Leukocytes varied from 28,950 on admission 3-20-10, with 96.5 per cent. polynuclears, to 14,000 with 86 per cent. polynuclears at operation, April 3, 1910.

March 28: Blood-culture sterile. Urine showed faint trace albumin; no casts. Culture showed colon bacillus. Cerebrospinal fluid showed large numbers of polynuclear cells; no micrococci.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. ROSS AND KNOTT

DR. THOMAS W. HUNTINGTON, San Francisco: In a long experience, attended with occasional humiliations, I have arrived at this conclusion with reference to the removal of the perforated appendix at the time of the initial undertaking: First, a condition which appears simple in the beginning may involve an exercise of the highest surgical judgment and skill. Second, the question of the removal of the appendix at the time is one which can be decided only at the time. In a word, the appendix at times can be removed even though it seems to be fairly well incorporated in the abscess wall; while on another occasion to touch an appendix which is incorporated in a barrier in the wall, is to invite failure if it does not insure it. My guide in this matter has been the condition existing prior to operation. If we can be perfectly sure that we are encountering a vicious type of infection, if the patient is melting down under it, if he has deteriorated materially within the preceding twenty-four, forty-eight or seventy-two hours, I have come to regard the appendix as being governed by the principle of *noli me tangere*.

DR. W. W. GRANT, Denver: There is no more unfortunate sequel to or complication of appendicitis than the subdiaphragmatic abscess. We know no such thing as an acute primary appendicitis. Dieulafoy some years ago called attention to the fact that certain forms of appendicitis particularly were prone to infect the regions of the liver, resulting in general sepsis and death, or the formation of an abscess which for its ramifications seems to have no end. I have myself called attention several years ago to the fact that the postcecal and posteolonic cases were the ones in which we expected this manifestation of appendicitis. Ordinarily in the beginning of these cases the tenderness and the pain point is not the McBurney, but it is at the intersection of the angle 2 inches to the right of the umbilicus, and about 2 inches above the McBurney point. If in these cases this point of intersection is examined carefully, it will indicate the location of the appendix.

It is a fact that the delay in operating is most frequent in this class of cases, and the resulting consequences only emphasize what we already know, that it is a serious matter to delay diagnosis, and thus delay performance of appropriate and immediately demanded operation, which is necessary to avert these serious consequences.

In other words, this form of trouble frequently called empyema, after the abscess has perforated the diaphragm, and the patient is expectorating pus through the bronchial tubes, is still not an uncommon consequence and error at the present time; and it is because the profession does not make early diagnoses and still further because early operation is not done to prevent these ulterior sad consequences, that a reflection is cast on the diagnostic skill and acumen of the profession.

In reference to the abscess cases, my own rule has been to remove the appendix whenever possible, without opening the peritoneal cavity. I still see no urgent reason, in the absence of peritonitis and extravasation, why we should open the peritoneal cavity. Why not pursue the safer course and avoid the added danger of exposing to infection healthy peritoneum, and thus have occasional bad sequelæ in the form of general peritonitis and possible death.

With drainage, results are good; a second operation to remove the stump is seldom required, and when so, it is under more favorable conditions than exists in acute abscess.

DR. ARCHIBALD MACLAREN, St. Paul: The point which Dr. Knott raises here is the question of the treatment of peritonitis. We have all accepted Dr. Murphy's theory in regard to the treatment of general peritonitis, then by following Dr. Knott's suggestion we advance it to a protective measure and so we do away with the troublesome and dangerous complications which so often follow the older methods as we have all been accustomed to pursuing them.

The universal removal of the appendix, which was advocated by some surgeons a number of years ago, was on the wrong principle, because they did not provide for drainage of the cul-de-sac. The success of all acute appendiceal operations goes back to the proper drainage of the bottom of the peritoneal cavity. My own personal experience before adopting this suggestion of Dr. Knott's was that in 100 appendiceal abscess cases, I found that to get the patient well, I had to open and drain through the rectum fifteen times. Possibly some of these patients would have recovered if let alone—but when you have a distinct abscess pointing in the anterior wall of the rectum, the safe thing to do is to open and drain it. Now, by following Dr. Knott's suggestion in practically all these cases of appendicitis it has only been necessary to open the rectum twice in fifty cases. So that has reduced the necessity for rectal drainage in my experience just one-half.

One of these cases of rectal drainage is quite interesting, because the patient had originally come with an appendiceal abscess which had been opened above and drained. Six days later he had to have an opening through the rectum to get rid of an accumulation of pus. He recovered and was perfectly well for one year and a half. Then he came back again with another appendiceal abscess. This abscess was opened above and the appendix removed, a drain was put through a suprapubic stab into the cul-de-sac. He did well until the fourth day when he had to have his rectum opened again before he entirely recovered.

My experience during the last year agreed with Dr. Knott's. In all abscess cases, I have opened the abscess, broken down the adhesions and removed the appendix in every case without a death. I have had two deaths in appendiceal cases this past year. One was in a young man with acute general septic peritonitis, opened and drained in the first thirty hours. The other was an intestinal obstruction due to an adherent appendix, operated on after she had vomited fecal matter for over forty-eight hours. The first was a case we would all operate on under any system. The second should not have been operated on at all, but surgery had to shoulder the responsibility of neglect.

DR. A. J. OCHSNER, Chicago: The results in as skilled hands as Dr. Knott's I believe will be good with the removal of the appendix in practically all cases. I follow this rule: In any given case in which I can be practically certain that, with the experience that I have had with similar cases, the patient will get well if I remove the appendix, I always remove the appendix. If there is the least possible doubt in my mind concerning my ability in the case under consideration I drain and do not remove the appendix. I always drain in cases in which I do not remove the appendix, I leave the wound open entirely—put in an enormous drain and see to it that the patient gets a very handsome ventral hernia.

Then I direct this patient to live on liquids until the appendix is removed. In two instances in which I had not taken this precaution, the patients ate carelessly after a time and died, one of an acute intestinal obstruction and the other one of an acute recurrent gangrenous appendicitis with diffuse peritonitis. Both patients were shipped into the city from the northern peninsula of Michigan, and when they arrived they were practically dead. Since I had these two experiences in which I was not positive enough in my directions I insist on the patient living on liquids.

I have never lost one patient in these secondary cases since I have postponed the second operation until the acute conditions had entirely subsided, and I have never had one in which the ventral hernia could not be cured safely, but I do not hurry about the secondary operation. Some years ago I was anxious about these cases and sometimes made the secondary operation too early, and in that class of cases I lost several patients.

As regards opening down into the cul-de-sac, the results which the essayist gives show that this is a good method. But I have never followed this method, because by simply removing the appendix and making a stab wound laterally and draining through this stab wound and then placing the cecum down on the drainage and placing the omentum around the wound, my results have been satisfactory. But evidently this method is at least as satisfactory.

The point that Dr. Knott makes about placing the patient on the right side and keeping him there and keeping the head of the bed elevated is a very important matter. In our recovery wards we have three beds in a row, and I noticed some years ago that the patient who had the left side of his bed along the wall, and who was compelled therefore to lie on the right side, always did well; and the patient along the other wall never did well—because he could not be kept on his right side. He would roll over to see some other patient, speak to the nurse, or do something else equally reprehensible. Since that time I have insisted on placing this class of patients in the bed first mentioned.

DR. WILLIAM FULLER, Chicago: I believe the rule that should govern the surgeon in dealing with practically all acute suppurations, whether in the head, chest, abdominal or pelvic cavity, or elsewhere, is that of drainage and that only.

It is possible, of course, for skilled surgeons to remove the vermiform appendix in acute suppurative conditions, and instances may be met with in which the plan is a safe one; but when adhesions must be broken down in order to accomplish this step, it is not without danger in the best hands. For operators with moderate skill and for young surgeons the method is not to be recommended.

I heartily agree with Drs. Oehsner and Grant who do not, as a rule, break down adhesions to remove the appendix in acute cases; but who first drain, then remove the appendix later. Adhesions are life-savers and should not be disturbed merely for the purpose of removing an organ which can be removed without danger subsequently.

DR. W. T. REYNOLDS, Kansas City, Mo.: Recent studies of the blood have taught us that in localized abscesses there has been an autogenous vaccination which has brought about a great resistance. In peritubal abscesses we never think of draining the abscess and leaving a leaky tube. The same proposition confronts us in the vast majority of instances in localized appendiceal abscesses. It is not usually hard to find a line of cleavage which makes it comparatively easy to divide the adhesions and find the diseased appendix. I am heartily in accord with the essayist and have found in my own experience a greatly reduced mortality in fearlessly draining from the bottom of the pelvis.

DR. VAN BUREN KNOTT, Sioux City, Ia.: Not many years ago at a meeting of this society we listened to claims that no appendicitis patient should be operated on. So I am not surprised to find men still claiming that a leaking, stinking appendix should be left in an abdomen to make the patient as uncomfortable as possible. Reform does not always come at once, but slowly and usually through hard knocks. But as far as my own experience is concerned, I am removing this appendix for a different reason. Some seem to think that the removal of the appendix at the time of the original operation is merely a matter of cosmetics—not that there is any reason to think that its removal can do the patient any good. But that is not the point. We remove the appendix to lower the mortality; and my mortality has been reduced from 8 to 1 per cent. in these cases; and these men will have to show me a lower mortality than 1 per cent. in these abscess cases before I will agree with them.

Sioux City is a small town, but we are near Missouri; and we shall be glad to show anybody who doubts the kind of work we are doing there. Two or three good men in Omaha and in Kansas City, Dr. MacLaren, of St. Paul, and other men throughout the middle west, are doing this kind of work. Dr. Ross tells me he has not left an appendix in the abdomen in four years and that in nearly every one of these cases he has described to you of subphrenic abscess, that came to post-mortem, he found there was always an appendix left. It is a fact that patients will not die from peritonitis; we did not have a death from peritonitis in this series of cases. I believe most cases of circumscribed abscess will die of sepsis rather than peritonitis, and they will be more apt to die of sepsis if drainage is superficial.

I am surprised to find so many different hidden pus pockets scattered through the lower portion of the pelvic cavity. These could not be reached by incomplete surgery. In my experience such surgery leads to an unnecessarily high mortality.

It is all nonsense to say that after the abdomen is opened you will decide whether or not you will remove the appendix, because no man can decide whether an appendix will come out hard or easy, if it is more or less tangled with adhesions.

No one should undertake this operation who is going to occupy thirty minutes in finding the appendix and getting it out after the peritoneum is opened; and if he does start to remove it and backs out because it is a little hard, he has exposed his patient to all the trauma he would get any way.

Dr. Oehsner says if he thinks his patient is going to die, he leaves the appendix. But this is just the class of cases in which we remove them.

DR. GEORGE G. ROSS, Philadelphia: I agree with what Dr. Knott has said. I have not left an appendix in four years, and as yet I have had no occasion for regret.

I believe that the mortality in these acute appendicular localized abscesses is not so much due to the infection of the peritoneum as it is to the fact that the infection gets behind the endothelial coat of the peritoneum. It is this type of retroperitoneal infection that is attended by a very high mortality for the reason that the retroperitoneal space cannot be drained.

TUMORS OF THE MESENTERY

WITH A REPORT OF FOUR CASES *

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In spite of the contributions that have appeared from time to time concerning mesenteric tumors and the interest manifested in certain reported cases, there is good reason to believe that these growths have been neglected and that they have not received the systematic attention to which their importance entitles them. That they are comparatively uncommon is admitted; but this would seem to supply a stronger reason for their careful study. When one has to depend on text-books or even on readily available periodic literature, one must encounter serious difficulty in the management of such cases. Under the clearest conditions, they require judgment and, above all, experience which may be gained at the cost of stumbling on them unawares.

In this paper an attempt will be made, first, to classify the existing pathologic and clinical knowledge of the subject; second, to record some personal cases, which will bear on questions of diagnosis and operative method; and third, to review the important articles found in the recent literature. It will not be necessary to go into historic detail, since Douglas[1] covered the facts in 1903, and both Vance[2] and Bowers[3] restated them in 1906.

ORIGIN

Our topic includes only those tumors which originate in the mesentery itself and not the so-called retroperitoneal growths. The latter may arise from any tissue behind the peritoneum and push forward between the layers of the true mesentery. They have served in a way to confuse the classification.

In order to appreciate the situation and character of these tumors, it is well enough briefly to consider the mesentery, its development and its structure. Any fold of peritoneum connecting a part of the intestine to the posterior wall of the abdominal cavity may be called a mesentery, though this unqualified term is generally employed to designate the special portion of the membrane attached to the small intestine (*mesenterium commune*).

In the development of the embryo, as the right and the left halves of the body cavity come toward each other, the early connective tissue is compressed into a primitive mesentery, which is attached to the whole length of the alimentary tube, from the stomach to the anus. Intestine and peritoneum are developed together, two layers of the serous membrane investing the bowel. When fully formed the mesentery is fan-shaped, its length of insertion being many times that of its fixed attachment. It runs obliquely from left to right, extending from the second lumbar vertebra, crossing the spinal column, to the right sacro-iliac joint. Its root, or point of origin of the two layers, is 6 inches in length, while the convex intestinal edge is 21 feet long (Gray).

Between the two layers of peritoneum that constitute the mesentery, run arteries, veins, lymphatic vessels, lacteals, and nerves—all imbedded in connective tissue and fat. These enter and leave through the posterior space, where the intestine is not completely surrounded by serous membrane. It is readily seen, therefore, that

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

1. Douglas: Surgical Diseases of the Abdomen.
2. Vance: Ann. Surg., 1906, lxiii, 366.
3. Bowers: Ann. Surg., 1906, lxiv, 892.

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tumors of the mesentery must be largely of the mesoblastic or connective tissue type.

VARIETIES

Growths of the mesentery may be solid or cystic. Cysts are by far the more common and, according to their contents, are either serous, chylous, hemorrhagic, hydatid or dermoid. Solid tumors are benign or malignant. The former are lipoma, myxoma and fibroma and the latter sarcoma. It is very probable that the lipomata greatly outnumber the others, but sarcomatous degeneration is said to take place sooner or later in the majority of the simpler neoplasms. The lipomata and fibromata are very often prone to attain an enormous size. The pathology of these tumors differs in nowise from that of similar growths in other organs.

ETIOLOGY

Little can be said of the etiology, because, indeed, little is known of it. Undoubtedly, some growths are congenital in origin, and certainly many exist for a long time before they are recognized. It is in such cases that the influence of trauma is given credence, for an injury may light up or call attention to a preexisting growth. Bachmann[4] refers to this fact in his report of the case of a boy of 9, who, eight weeks before examination, had fallen across a barrel and on whom an autopsy was done two months later, which showed large masses of multiple fibromata in the mesentery. He quotes Pean as having noted the fact that large tumors may be present for years, only to be revealed in their final stage by some sort of traumatism. Age and sex apparently are not factors in the occurrence of these growths. In childhood, however, we very rarely meet the solid tumors.

REPORT OF CASES

Before discussing more practical questions, it will be well to put on record the cases which form the basis of this paper. By virtue of those peculiar coincidences which sometimes crop out in our work, four mesenteric tumors fell to my lot last year, within the space of six months, the last three coming all within a period of a little more than one month. They are presented in the order of their occurrence.

CASE 1.—*Dermoid Cyst of the Sigmoid Mesocolon.*—Mrs. Y., aged about 40, of frail constitution, mother of three children, two weeks before coming under observation, had a sudden severe abdominal pain, beginning in the right iliac region, but quickly transferred to the left; she vomited and had fever. There was a history of previous colics and of one attack nearly a year before resembling this, except that the pain was chiefly in the bladder region.

Examination.—On the first visit, March 28, 1910, temperature was 101; there was pain and tenderness all over the abdomen, but particularly at the border of the left rectus, low down; very little distention. At the second visit, evening of same day, the tenderness was much less, but the fever much higher (104); local signs diminishing. It was agreed that no interference should be advised until the acute process had passed away. By April 12 there was a practical subsidence of fever and pain; the abdomen was flat and the patient's general condition was good. Local symptoms were centering in the right lower iliac region, where a very sensitive mass could be felt; this mass was easily palpated on bimanual examination and gave indistinct fluctuation. A likely diagnosis was pyosalpinx, but in the absence of any history leading to that affection, it was considered improbable. No definite statement was ventured.

Operation.—Rex Hospital, April 13, 1910: right rectus incision. A mass of adhesions was encountered around the bladder, uterus and cecum; the sigmoid flexure had been drawn far over to the right and within the folds of its mesentery, near the intestinal border, was found a somewhat flattened cyst of the size of an orange. In the process of enucleation the cyst was ruptured and the character of its contents—teeth, hair and bone embedded in a mushy material—was determined. The mesenteric vessels were uninjured and no ligatures were required, only whipping over the edges with catgut. The uterus, tubes and ovaries were normal; the appendix, being engaged in the adhesions, was removed. A drainage tube with tape was inserted into the lower angle of the wound.

The patient had a very pleasant recovery and is in better health than she had been for several years. The specimen (Fig. 1) is a typical dermoid cyst, containing hair and a well-marked alveolar process with several perfect teeth.

Dermoid cysts of the mesentery are, of course, very rare. According to Bell and Yeoman,[5] up to 1908 about 150 cases of mesenteric cysts were found scattered throughout the literature; but of all these cases, there are certainly not more than twenty described as dermoids. These writers report a dermoid of the jejunal mesentery in a woman of 24, which was felt as a large, round, tender and movable "lump" between the uterus and the bladder, and thought to be a fibromyoma of the uterus. It was found lying between the folds of the mesentery with a loop of bowel curving around it. Attempts at enucleation being unsuccessful, the entire cyst was excised, the hole in the mesentery closed and a loop of bowel resected. The patient made a tedious recovery. Ehler[6] also operated successfully on a patient, aged 22, for a dermoid cyst of the descending colon, which had to be dissected widely and was associated with another similar cyst at the hilum of the kidney. These two are the only other dermoids of the mesentery reported since 1907, and bring the number to not more than twenty-three, including the case herewith presented.

Dermoids, wherever found, have their origin in fetal inclusion or implantation from the ectoderm and are, therefore, congenital growths. They belong to the class of teratomata. The mesenteric forms are commonly derived as post-rectal dermoids, which may develop at any point along the infolding process. They do not usually give clinical signs until long after infantile life and are more apt to contain teeth than are dermoids in any other situation.

CASE 2.—*Sarcoma of Sigmoid Mesocolon.*—M. A. F., male, colored, aged 50, for several months had been troubled with abdominal pain and tenderness. At first his bladder was irritable; lately his rectum had been troubling him. He was sent in with a diagnosis of bladder tumor. He had lost about 30 pounds in weight.

Examination.—In appearance he was emaciated and hollow-eyed. The abdomen showed a hard nodular tumor, low down, near the mid-line, but chiefly to the left; on rectal examination it was found somewhat movable and apparently lying on the rectum. It had exactly the "feel" of a uterine fibroid in a woman.

Operation.—St. Agnes Hospital, Sept. 1, 1910: a low left rectus incision. About a pint of serous fluid was in the cavity. The large tumor (Fig. 2) was attached to the sigmoid flexure and was seen to spring from its mesentery. With some difficulty the growth was stripped off the bowel and enucleated from the mesosigmoid. The raw areas were closed with catgut. There were metastatic growths lower down, along the rectum and behind the bladder. The operation lasted twenty-five minutes.

At first the patient did well, but he became distended and vomited and, though his bowels moved and the pulse was never very rapid, he died on the fifth day. No autopsy was allowed. The pathologic report proved the tumor to be a round-cell

4. Bachmann: Inaugural Dissertation, Erlanger, 1908.

5. Bell and Yeoman: Brit. Med. Jour., 1908, ii, 810.
6. Ehler: Rév. de méd. technèque, Prague, 1908, i, 38.

sarcoma. It was not so soft as such growths usually are and was definitely encapsulated.

Since 1906, when Vance[7] reviewed the literature and in addition to his own case, found seven others of mesenteric sarcoma, there have been reported two more. These were both of mixed type. König's[8] case was that of a woman, 69 years of age, with cyanosis, dyspnea, anasarca, ascites and a feeble pulse. He tapped and drew off 15 liters of fluid, locating a tumor of the shape and size of a child's head below the umbilicus. Operation revealed a tumor, partly solid and partly cystic, growing from the mesentery and loop of small intestine. Extirpation and resection of portion of bowel, with use of the Murphy button. Uneventful recovery followed. Microscopic examination showed the tumor to be a fibrosarcoma with large spindle cells. Marullaz[8] presents the case of a man, aged 65, who had noticed swelling of the abdomen for two years. It was 108 cm. in circumference; the patient's general condition was poor, but no edema or ascites was present. At operation the large growth was found adherent to the stomach and transverse colon; resection was necessary for its removal and the patient died thirty-six hours afterward. The tumor weighed over 6 kg., and turned out to be a myxosarcoma of the mesentery.

CASE 3.—*Blood Tumor of Mesentery.*—J. S. F., male, aged 60, had always been healthy up to a year ago, when he began to have pain in his right side. He was treated in January, 1910, for what was thought to be appendicitis. He seemed to recover in four days and did not complain again for six months. At that time an enlargement was found in his right abdomen. He was then advised to seek surgical aid, but declined. For the past three months he had lost much flesh and strength, but had been almost free from acute pain.

Examination.—There was found in the right half of the abdomen a swelling of the size of a grapefruit, located almost on a level with the umbilicus. It was freely movable and seemed too far forward for the kidney. A mesenteric growth was the most probable condition.

Operation.—At Rex Hospital, Sept. 23, 1910: an incision in the right rectus muscle exposed the hard nodular dark-red tumor, which grew in the mesentery of the ileum. It encroached so closely on the intestinal wall and appeared so plainly malignant that a lateral anastomosis was decided on. Nine inches of the bowel were removed along with a corresponding amount of mesentery down to its root. The patient did very well until the second day, when he suddenly developed pain, vomiting and delirium without unusual distention, and died probably from gangrene of the intestine. It was impossible to make a post-mortem examination. The pathologist's report, somewhat of a surprise, was as follows: "Sections from four different portions of tumor show only young connective tissue (an organizing clot). No indication of malignancy" (Fig. 3).

This was a very difficult case. Resection was undoubtedly demanded, and yet one hardly hoped to have success with it. The large V-shaped portion of mesentery, which had to be excised, contained thrombosed blood-vessels, and they probably extended into apparently healthy areas beyond the line of division. Malignant degeneration of a preexisting growth was certainly suggested by the history. Possibly a slow-forming mesenteric thrombosis may have accounted for the condition. There is a chronic thrombosis which gives rise to a large blood tumor between the layers of the mesentery, but it is much more rare than the acute form. Codman,[9] in speaking of this condition, says: "I have not made the diagnosis in any of them, nor do I expect to in the next." According to Douglas,[1] mesenteric blood-cysts may be due to injury with non-absorption of the effusion or to hemorrhage into a preformed cyst, as observed by himself. No sort of possible history of traumatism could be elicited in the case now being considered. So, in the light of the pathologic findings, it has been put down as a blood-tumor of the mesentery, due most probably to a long-continued process of embolism and thrombosis.

CASE 4.—*Round-Cell Sarcoma of Transverse Mesocolon.*—Mrs. G. W. D., 52 years old, had her menopause in 1904. In June, 1910, she began to flow again and this went on almost continually to the time of her admission on Oct. 6, 1910. Soon after the flow started, she felt an enlargement in her right side, accompanied by more or less pain. This lump continued to grow rapidly. During this time she lost weight, perhaps 20 pounds or more, and did not feel well at any time.

Examination.—A very freely movable tumor, about 8 inches long and 4 inches wide, soft in consistency, was found apparently attached near median line, below and just to the right of the umbilicus; it could be pushed into the pelvic region and might easily be mistaken for an ovarian cyst; the uterus was normal; no growth on the cervix or on the endometrium; the adnexa showed no disease.

Operation.—Oct. 7, 1910, Rex Hospital: A long median incision below the umbilicus revealed a mass rolled up in the omentum. This was tied off and the tumor brought up. It was a growth (evidently sarcoma) of the transverse mesocolon, and was shelled out without wounding the bowel or the mesenteric vessels. The bleeding was easily controlled. Hard metastatic nodules were felt in the pelvic cul-de-sac. The pathologist reported "sarcoma—round-cell type."

The patient made an easy operative recovery and went home in two weeks. Before she left the hospital, the growth was larger than it was when she came in, and she died at her home about one month later.

There was no opportunity here to do any bowel resection owing to the secondary growths and the patient's enfeebled condition. The diagnosis was evident from the rapidity of the tumor growth and the patient's malignant appearance. It was a typical mesenteric sarcoma (Fig. 4), its consistency being, as described by Bazin,[10] "neither soft nor fluctuating, but pasty; the surface not smooth but lobulated." It differed markedly from that of the second case in this series, though they were of the same cellular type. The comments made under that case will apply here.

DIAGNOSIS

One hesitates to lay down any rules whatever for the diagnosis of mesenteric tumors. It is often impossible to say beforehand that a recognizable enlargement is certainly a growth of the mesentery, and it may be well to feel contented simply with deciding in most cases that surgical intervention is or is not indicated. Exploratory diagnosis is unquestionably the easiest and surest way. A few principles for guidance, however, may be set forth, these being based on the collected experience of those who have in late years written on the subject. Douglas is the only author who gives adequate consideration to the diagnosis. I shall not here undertake a labored presentation of symptoms and signs. Rather will it be better profit to lay emphasis on those things which point to an existing tumor as being possibly mesenteric and to mention those conditions which might prevent confusion in distinguishing this growth from some other neoplasm.

Subjective symptoms, if present, are not usually distinctive. Pain, which is the most important, is not apt

7. König: München. Med. Wchnschr., 1906, liii, 330.
8. Marullaz: Arch. de méd. exper. et d'anat. path., 1907, xix, 263.
9. Codman: Med. and Surg. Papers, Mass. Gen. Hosp., iii, No. 2, p. 146.
10. Bazin: Thèse, Paris, 1907.

to be attributed to the rare condition of a mesenteric tumor, but more probably to biliary, nephritic or appendicular colic; constipation is nearly always the rule, and digestive troubles, especially nausea and vomiting, are common, but so they are in many other conditions. Intestinal occlusion, volvulus and invagination may result from the presence of the tumor and give the symptoms attending those conditions.

Fig. 1.—Dermoid cyst of sigmoid mesocolon.

Fig. 2.—Sarcoma of sigmoid mesocolon.

The signs that most clearly give evidence of mesenteric tumors concern their position, their mobility and their relation to other organs. They are situated either in the middle line or far to either side over the course of the large bowel. Free mobility is the most important single sign, as no other abdominal tumor will show this to the same degree. The motion from side to side is especially marked. This may in a measure be diminished when the tumor is allowed to advance to a great size. If it can be determined that the tumor is separable from the solid viscera, a long step forward in the diagnosis will be made. Bazin speaks of a zone of resonance in front of or below the growth, and Douglas suggests that this may be of value in eliminating pelvic tumors, if the patient is examined in the Trendelenburg posture. König regards these as the important points: colicky pains radiating toward the umbilicus, the presence of bowel over the tumor and unusual mobility of the growth; and yet in his case none of these signs was present. Ascites is one of the common complications.

Fig. 3.—Blood tumor of mesentery.

The differential diagnosis offers a wide field of problems. Chief among these are ovarian cysts (which figured very strongly in the fourth case of my series), tumors of the liver, enlargements or displacements of the kidney, growths of the bowel itself and cysts of the pancreas. It will hardly be expedient to go over the detailed characteristics of these conditions, as they are well known. One must keep them strongly in mind, however, when differentiating abdominal growths and be prepared to learn that the diagnosis of mesenteric tumors is not a simple affair. Their very rarity is a reason for their being often overlooked. Reporting a fibromyxolipoma of the mesentery four years ago, Wiesinger[11] remarked: "In the many thousand laparotomies

11. Weisinger: Mitt. a. d. Hamburg. Staatskrankanst., 1907, vii, 191.

performed by the author for several years, this is the only case he has observed." Cysts, more than the solid tumors, are likely to furnish sources of error in diagnosis, from the areas of fluctuation usually present. These may be noted also in a lipoma when soft and of large size, as mentioned by Terrier. Bazin considers the diagnosis of sarcoma very difficult. He lays stress on "the rapidity of the growth, the cachexia and the more or less profound yellow tint of cancer." Furthermore, he seems to advise aspiratory puncture; this, he states, "will yield a cystic liquid mixed with blood, which is not the case in a lipoma owing to its lack of vascular supply." The European surgeons, as a rule, write very unconcernedly of this method, as if it were their custom to aspirate all abdominal swellings for diagnostic purposes—a practice which surely cannot be commended. Myxoma of the mesentery has been confounded with multilocular cyst of the ovary. Diagnosis must depend on excluding all possible evidence of the latter.

Fig. 4.—Round-cell sarcoma of transverse mesocolon.

PROGNOSIS

The outlook depends largely on the character of the growth. Danger results not only from malignancy which may be present or imminent, but also from pressure due to the large size such tumors often attain. Early recognition and prompt removal are the remedies for both of these perils. Unfortunately, late diagnosis and tardy removal have appeared to be the order of the day, and thus the mortality has been high. In 1898 Begouin collected notes of twenty-nine solid tumors of the mesentery; of the patients only fourteen survived the operation (mortality 51.7 per cent.). Writers have since stated that our results are now better; but more recent reports do not show great improvement. Vance, in 1906, found twenty-seven cases in the literature of the five years preceding and eleven of the patients died, a mortality of 40.7 per cent. Since that date, I have records of nine cases (including two dermoids) with three deaths; these, added to the four of my own, give a total of thirteen cases with six deaths, or 45.1 per cent. mortality.

OPERATIVE METHODS

In deciding on the proper procedure at the operation, one must have in mind three questions: First, is the tumor benign or malignant? Second, is it primary and isolated? Third, how much, if any, intestine is to be sacrificed in its extirpation? These points are often very difficult to determine. Since the last issue must depend on the first two, the whole matter may be resolved into a decision on the indications in any given case for resection of the bowel. The mortality percentage will be closely concerned with this decision. In Vance's twenty-seven collected operations the intestine was resected thirteen times, with seven recoveries and six deaths; three of the tumors were sarcomata and all the patients died, while of the five fibromata cases only one resulted fatally. Obviously, one should be aware of the risk when electing to perform resection. Yet Murphy removed two feet of bowel, Lexer six and a half feet, and Shepherd seven feet eight inches, all successfully, for benign growths. It must be conceded, of course, that the cases suitable for resection are those in which malignancy is evident or in which the growth by its size or situation encroaches dangerously on the bowel; both of these conditions will naturally be associated with a high death-rate. Most assuredly the danger is increased by the removal of a portion of the bowel and the time consumed in the consequent anastomosis, on account either of shock, which has been given as the cause of death in many of the operations, or of gangrene of the intestine, resulting from injury to the nutrient vessels, or of peritonitis, due to imperfect technic. We can heartily join Wiesinger, therefore, in his advice to avoid resection wherever possible, and, as a sort of corollary, to be careful not to wound the blood-vessels of the mesentery in extirpating the tumor. When that golden age shall arrive, in which the surgeon will be given early the privilege of examining and, if it seem wise, of operating on these patients promptly, then the vexatious questions which have just claimed our attention may trouble us less and less.

HAVE WE AN IDEAL OPERATION FOR INTERNAL HEMORRHOIDS?

A NEW HEMORRHOID CLAMP

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It is proper to acknowledge, by way of introduction, that no operation in surgery of equal importance has been performed as often or with as uniform success as that for the relief of internal hemorrhoids. This record is all the more remarkable when the number and indiscriminate qualifications of the operators are considered, and when the many diverse methods advocated and practiced are called to mind.

It is probably no exaggeration to say that operation by the ligature and clamp-and-cautery methods has been performed hundreds of thousands of times under every imaginable condition, with a resulting mortality so low as to be practically negligible. And the same is true of an additional large number of cases in which the long list of modified and new methods have been employed. With this phenomenal history of achievement, it would seem that there is little ground for criticism either of the standard or of the more recently devised methods of operating. And let me hasten to add that such is not the purpose of the present brief paper, except in so far as the several methods fail to conform to the accepted principles and precepts of modern surgery.

Now what are those principles and precepts as applied to the surgery of internal hemorrhoids? Among the more important are: (1) complete hemostasis, (2) immediate closure of the operative wounds, (3) preservation of the function of the parts, (4) permanency of cure, and (5) due consideration of the factors of safety, simplicity of technic, time required for recovery, and the amount of post-operative pain. Antisepsis is not included in the list for the reason that at the present

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time this is recognized as the indispensable requisite of all surgery.

Considering first the two older or, as they may be properly termed, standard, methods of operating, in the light of the requirements enumerated, we find that each is open to criticism on one or more counts.

The ligature operation conforms to all the principles laid down except the second; that the open wounds with the sloughing stumps and granulating surfaces resulting when this method is employed are far from ideal, cannot be gainsaid; indeed, it is one of the wonders of rectal surgery that infection and disaster do not follow this operation uniformly instead of so rarely as to be virtually unknown. In this one important respect the operation by ligature is to be strongly condemned.

The clamp-and-cautery operation meets perfectly the first four requirements, but fails to meet the fifth. As performed by the average operator it is neither so safe and simple nor so expeditious and painless as to merit unqualified endorsement. Secondary hemorrhage following this method is by no means unknown; the technic is far from simple, an elaborate apparatus and an extra assistant being always required; the operation itself consumes more time and the period of confinement is certainly not shortened; and finally the amount of post-operative pain is greater than follows any other method in common practice. It cannot be said, therefore, that the method is beyond criticism, even though the final results approach the ideal.

Of the numerous more recently devised methods, I shall only refer to the three which are probably best known and most distinctive in conception. Of the five classes of principles laid down by which to estimate the merits of the various operative procedures, the Whitehead operation conforms to only two; i. e., the second and fourth. The vitally important principles embodied in the third and fifth classes are totally disregarded, while that of the first class is practically ignored during the progress of the work itself. The enormous loss of blood incident to the performance of the Whitehead operation is a serious drawback. Scarcely less so is the ever-present danger of impairment of the function of the part by the substitution of abnormal relations or as the result of vicious cicatrization. It is also the most dangerous as well as the most complicated of all operations for internal hemorrhoids. Added to this series of disadvantages is the further consideration, which I state as a personal conviction, that it is both an unnecessary and an unjustifiable procedure. Of the many hundreds of patients operated on by me, I do not now recall a single one in whom the Whitehead technic seemed especially indicated, and I have never had occasion to regret the choice of another method.

The operation by means of Earl's clamp is in reality a modification of the Whitehead method. It is also a distinct improvement on it, in that the great loss of blood is prevented and the important advantages of comparative safety and simplicity gained. But it is open to the same indictment under class 3; namely, that it presents the practically identical danger of interference with the function of the parts.

Pennington's enucleation operation is an ingenious one, and one which has many features to commend it; but it unquestionably falls short with reference to the first-named of our arbitrary list of surgical principles. In the skilful hands of its experienced originator, the danger of hemorrhage may be and doubtless is reduced to a minimum, but in the hands of the average operator this feature of inadequate hemostasis certainly constitutes a glaring and formidable objection. It is, moreover, by no means a simple procedure either in the execution of the operative work or in the care and discrimination required in the adjustment of a proper dressing.

Now, after the foregoing iconoclastic onslaught, the question will at once be asked, does the critic know of a method more free from objections? With all becoming humility I answer, he believes he does.

The clamp and suture operation performed according to the following technic fullfils perfectly all of the conditions embodied under the five headings: A narrow clamp with tapering blades is applied to the base of the hemorrhoid to be removed in a direction parallel with the long axis of the intestine and so that its smaller, or free, extremity engages the upper, or proximal, portion of the tumor. By depressing the handle of the clamp the end of the blades where the suturing is to begin is brought into full view. A No. 1 or No. 2 chromicized cat-gut suture threaded on a round, half-curved needle is now passed beneath the tip of the clamp and securely tied on the sound mucosa above the base of the tumor. This is the most important step of the operation as, if properly executed, the blood-supply of the tumor that is being dealt with is at once effectively controlled. With scalpel or scissors the portion of the tumor outside the grasp of the clamp is amputated and a continuous suture inserted over the clamp blades, as in the Earl operation. The clamp is then gently loosened and withdrawn and

the suture carefully and uniformly tightened and secured at the skin margin. Each pile tumor in turn is treated in a similar manner. If one or more of the growths is of the externo-internal variety, the clamp should be so adjusted as to include as much of the anal margin as may be indicated at each application. In order to avoid the possibility of the tissues slipping from the grasp of the clamp, it is best to amputate the overlying portion of the tumor by degrees, following the knife or scissors closely with the sutures. As a rule the sutures should be placed from 1/6 to 1/8 of an inch apart, though when the first one is properly placed, the danger of hemorrhage is largely eliminated and approximation of the edges of the mucosa is the chief purpose of the remainder.

The only dressing required is a small, well-lubricated, strip of gauze passed into the rectum, an external compress and pad and a T-badge. The operation can be performed very rapidly with a little experience, the amount of time required in a given case depending, of course, to a great extent on the number of tumors to be removed. The post-operative pain is not greater either in degree or duration than that following other methods and convalescence is fully as rapid.

This method lends itself to local as well as general anesthesia, though in the former case rapidity of operation is much more essential, particularly if multiple tumors are to be removed. Special attention to antisepsis is necessary in order to obtain the best results.

It will be observed that this method is closely analogous to the clamp-and-cautery operation, the only difference in technic being that in the former the suture instead of the cautery is relied on for hemostasis and permanent closure of the wound. That, when properly applied, it is much more dependable for these purposes cannot be denied. In addition, in my experience, it is followed by less after-pain and fewer reflex disturbances.

Considered in the abstract, I have always regarded the clamp-and-cautery method as more perfectly meeting the surgical conditions involved in the operative treatment of internal hemorrhoids than any other in general use. If, as I believe is true, the method here presented retains the advantages of the former at the same time that it overcomes in a practical way its few defects, I am prepared to say that it is the most nearly ideal of all methods yet devised.

I would have it distinctly understood that I claim neither priority nor originality for the technic here advocated. It has probably been described before, but I have not sought to ascertain by whom first, or when. My object has been rather to emphasize its value and again bring it to the attention of the workers in this field. Many times in recent years, particularly when performing operations on adjacent organs at the same time, e. g., lacerated perineum, I have resorted to it because of its obvious advantages. More lately I have been employing it frequently in simple cases, and always with complete satisfaction.

The only new feature I wish to call attention to is the clamp herewith presented, which, as will be at once recognized, is merely a modification, or rather an adaptation, of the original pattern of Earl's clamp. Formerly I used merely a pair of narrow-bladed artery forceps and, while they answered the purpose fairly well, I always recognized the need of a longer and stronger clamp of similar design. I have had occasion to use the new instrument only a few times as yet, but can unreservedly recommend it to those who may be sufficiently impressed to give the method a trial.

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EXPERIMENTAL DIRECT TRANSPLANTATION OF TENDON AND FASCIA*

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Tendon and fascia are not highly differentiated, regenerate rapidly, under favorable conditions, to repair extensive defects and require but little blood to maintain functional activity. They should, therefore, be well suited for purposes of direct transplantation. The feasibility of the direct transplantation of tendon and fascia first suggested itself to us some two years ago while repairing an extensive defect of the extensor tendons of the fingers resulting from a burn by a hot rolling iron such as is commonly used in steam laundries. The space to be bridged was so wide that it was necessary that the long tendinous flaps, which had to be used, should remain attached to the parent tendon by merely enough tissue to insure continuity. Although in this case the greater part of the tendinous flaps were independent of the parent tendon so far as nutrition is concerned, the functional result, complete extension of the fingers together and independently, was perfect.

Gluck,[1] while experimenting on the direct transplantation of muscle, was the first to demonstrate that tendons could be transplanted directly. He transplanted the gastrocnemius from one fowl to another and demonstrated that the function of the transplanted segment could be maintained. The tendo Achillis, which had been transplanted with the muscle in these experiments, had a perfectly normal gross appearance when examined. One of the transplanted tendons was examined after forty days. No histologic examination of the transplanted segments was made; at least, no mention is made of such an examination.

This experimental work never had a very extensive practical application, but few cases having been reported in which direct tendon transplantation has been attempted in man. Heuck,[2] in 1893, while repairing a defect in the long extensor of the thumb, accidentally tore off the flap from the parent tendon. The completely separated flap was sutured in position, and, notwithstanding that two pieces of the transplanted tendon sloughed out, a good result was finally obtained.

Peyrot,[3] in 1887, used a heteroplastic transplant with apparent success. In this case both flexor tendons of the left middle finger had been lost. A piece of tendon 4 cm. in length was removed from a young dog and sutured into the defect with catgut sutures. The transplant healed in position, although the cutaneous wound did not heal by primary intention. In this case the function was not completely restored, but it was greatly improved.

Monod,[4] the same year, transplanted a tendon from the hind leg of a rabbit into a defect in the flexor longus pollicis measuring 5 cm. in length. The functional result of this operation is reported as perfect, a thick, round tendon being felt at the site where the transplant was inserted. Monod was unable to state whether the transplanted segment acted as a bridge or as a true substitute for that which had been lost. Mainzer,[5] in 1902, reports two cases in which direct homotransplants were used successfully to bridge over defects while transferring tendons. In his first case, the tendon of the paralyzed peroneus tertius was used as a direct transplant to bridge a space between a flap taken from the tendo Achillis and the extensor longus digitorum. In this case the patient could extend the toes and flex the foot after thirteen weeks and could walk normally after one year. In the second case the tendon of the peroneus tertius was used as a direct transplant to unite a flap from the tendo Achillis with the extensor longus digitorum. Dorsal flexion of the foot was good after seven days. These are about the only instances in which direct transplantation of tendon has been attempted in man.

Plastic operations on tendons by means of dead foreign material such as catgut, silver wire and silk have never been used extensively in the repair of defects of the flexor and extensor tendons of the fingers, notwithstanding that the silk tendon, as employed by Lange, has yielded such brilliant results in the correction of palsies following infantile paralysis. Lange himself says,

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

1. Gluck, T.: Ueber Muskel und Sehnenplastik. Arch. f. klin. Chir., 1881, xxvi, 61.
2. Heuck: Ein Beitrag zur Sehnenplastik, Centralbl. f. Chir. 1882, No. 18, p. 289.
3. Peyrot: Centralbl. f. Chir., 1887, No. 20.
4. Monod: Centralbl. f. Chir., 1888, No. 51.
5. Mainzer: Ueber indirekte Sehnenüberpflanzung, München. med. Wchnschr., 1902, No. 21.

concerning the repair of tendon defects caused by suppuration, that the infection remaining at the site where the artificial tendon is to be inserted may cause the latter to be extruded, and that even if the artificial tendon healed in position, the dense scar tissue may lead to such strong adhesions that the function of the artificial tendon may be seriously interfered with. It is in the repair of defects of the flexor and extensor tendons that a living transplant is especially desirable, although the autoplastic operation devised by von Hacker[6] some eight years ago has given results in his hands which can hardly be improved on.

Dogs were used in the experimental work which has been done by us. In one series of experiments, pieces of tendon measuring 1 or 1¼ inches were removed from the tendo Achillis of one dog and inserted into a defect of about the same length in the tendo Achillis of another dog. The legs of these animals were immobilized long enough to insure integrity of the sutures, then the cast was removed, for as will be shown later, early use of the leg in which the transplant is inserted seems to have an important effect on the viability and development of the transplant.

Fig. 1.—A dog from left hind leg of which a piece of tendon one and one-quarter inches in length had been removed and replaced by a piece of tendon of about the same length from another one. Picture taken four weeks after transplantation. The dog walked in two weeks after the operation, with only a slight limp. B, control dog. A piece of tendon measuring from one to one and one-quarter inches was removed and not replaced. The heel drops, resting on the board.

In another series of experiments pieces of tendon measuring 1 or 1¼ inches were removed from the tendo Achillis and inserted into a pocket in the subcutaneous fat of the abdomen. These pieces were placed in the subcutaneous fat rather than in the muscle or between the fascia, because the circulation would not be so readily established. The experiment was thus subjected to a severe test and, besides, if direct transplantation were attempted, it would be advisable to run the transplant through tunnels in the subcutaneous fat whenever possible.

In studying the fate of fascial transplants, strips of fascia lata or of the sheath of the rectus abdominis measuring ¾ inch in length and ½ inch in width were dissected loose and buried either under the subcutaneous fat or placed free on the fascial plate from which they had been separated.

6. Von Hacker: Ueber den autoplastischen Ersatz der Streck und der Beugesehnen durch entbehrliche Sehnen des Handrückens, Beitr. z. klin. Chir., 1910, lxvi, 259.

TENDON EXCHANGE, THE TENDO ACHILLIS BEING TRANSFERRED FROM ONE DOG TO ANOTHER WITH EARLY USE OF THE LEG AFTER THE OPERATION

The tendon transfers were made under careful aseptic precautions, as primary wound healing is essential to success. The pieces of tendon were traumatized as little as possible and protected from drying during the process of transplantation. In order to insure early use of the leg, without danger of separating the transplant from the muscle and tendon to which it had been sutured, rather heavy iodin catgut or Pagenstecher's linen were used and accurate approximation of the ends secured. It is important that the leg carrying the transplant be used early. Some dogs, in which a piece of tendon had been removed and not replaced, were used as controls. These animals always walked with a drop foot, there being no restoration of function. In one control dog, the defect remaining after removal of the tendon was filled in by new tissue. This differed markedly, however, from the transplant, and although there was in this case what might be called an anatomical restoration of the tendon, there was no return of function. This tissue was present forty-five days after the segment had been removed.

Fig. 2.—Appearance of tendon three weeks after transplantation. The transplanted tendon is larger than the normal one on the opposite side. It is fusiform in shape and does not taper down to its insertion as the normal tendon does. The line of suture can no longer be made out.

The transplanted tendons were examined after seven, seventeen, twenty-one, thirty-five and fifty-nine days. In these cases a round, resistant, somewhat enlarged tendon could be felt beneath the skin under which it moved quite freely. In some of our cases, the transplant underwent regressive changes as the result of infection or of undue tension on the segment. In these the transplant became soft and pulpified and imparted to the palpating finger a much different sensation than that imparted by the living transplant. In all of the successful cases, the dog could use the leg at the end of a week, and at the end of fourteen or fifteen days, the animal could walk without much of a limp or any dropping of the foot.

We will not give a minute description of the changes occurring in each case, but will mention those which we consider to be most characteristic.

Some of the most important changes relate to the size and form of the transplant. At the end of seven days the transplanted segment, which has not increased much in size, lies in a mantle of grayish red embryonal tissue which is usually separated from the transplant proper by a thin layer of plasma. At the end of seventeen days the transplant shows some enlargement, and the mantle of granulation tissue which surrounds it has formed a rather intimate union with the transplanted tissue. At

the end of three weeks, the tendon transplant is from two to three times thicker than the normal tendon on the opposite side. In the tendo Achillis of the dog there are three separate tendon bundles, each surrounded by a synovial sheath. In the transplanted tendon these three bundles become united so that they can no longer be isolated, this union being due apparently to proliferative changes in the peritendineum.

This change in size has been noted by both Kirschner[7] and Rehn[8] in their experimental work dealing with transplantations of tendon. In describing a tendon examined thirty-three days after transplantation, Kirschner remarks that the exposed tendon appears as a rounded cord which is about twice as thick as the normal tendon on the opposite side, and that it is so sharply

Fig. 3.—Appearance of tendon fifty-nine days after transplantation. The tendon resembles quite closely a normal one. It is still somewhat larger than the normal one on the opposite side, but it approaches the normal closely in shape, tapering down to its point of attachment, being no longer fusiform.

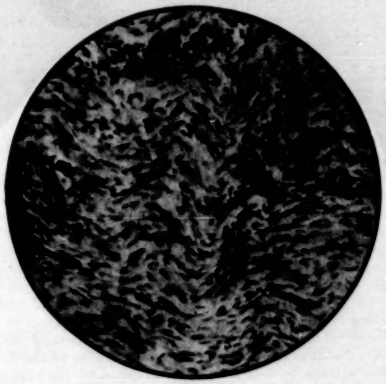

Fig. 4.—Longitudinal section through a tendon three weeks after transplantation. The fibrillæ and nuclei stain well and appear practically normal. There are some proliferative changes in the peritendineum.

delimited from the surrounding tissues that there is no doubt as to the exact limits of the transplanted tendon. Rehn says, in describing one of his specimens removed after seven weeks, that the transplanted segment is about three times as thick as the tendon on the opposite side.

The tendon transplants become fusiform in shape and do not taper down to their point of attachment as does the normal tendo Achillis. The center of the transplant is usually the widest part, there being a gradual reduction in size on either side of the middle of the transplant down to the suture line.

The changes in size and shape of the transplants are due, we believe, to two things: (1) proliferative changes in the subcutaneous tissue surrounding the transplanted tendon and in the peritendineum externum and inter-

Fig. 5.—Section parallel to long axis of tendon five weeks after transplantation, showing swollen curled fibers of transplant.

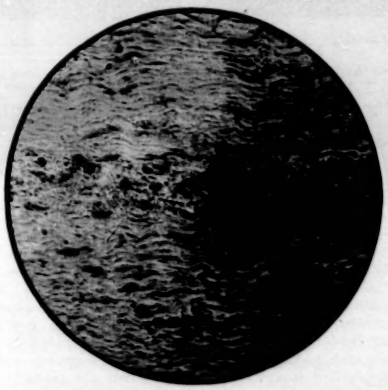

Fig. 6.—Longitudinal section through tendon fifty-nine days after transplantation. Tendon practically normal.

num; (2) edema of the transplant, resulting from an imperfect reestablishment of the circulation.

As regards the proliferative changes in the peritendineum externum and internum, our findings are in accord with those of Rehn. He states that, during the first three weeks after transplantation, proliferative changes in the peritendineum are the most prominent of

7. Kirschner, M.: Ueber freie Sehnen- und Fascientransplantation, Beitr. z. klin. Chir., 1909, lxv, 472.
8. Rehn, E.: Die homoplastische Sehnentransplantation im Tierexperiment, Beitr. z. klin. Chir., 1910, lxviii, 417.

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any occurring in the transplanted tendon, and that by the twenty-first day the peritendineum externum has proliferated to form a thick mantle of newly formed tendon tissue which surrounds the transplanted segment and supplies the latter by numerous capillaries which develop from it with nutrition.

The mantle of tissue which we have observed is developed partly from the peritendineum externum and partly from the subcutaneous tissues which form the bed for the transplanted segment. This mantle of tissue is rich in blood-supply, and undoubtedly furnishes the greater part of the nutrition for the transplanted tendon. When the proliferative changes in the transplant are most marked, the mantle of proliferating tissue and the transplanted segment are closely united.

Fig. 7.—Cross-section through piece of tendon transplanted into the subcutaneous fat and removed after five weeks. Piece of tendon reduced considerably in size. There is considerable leukocytic infiltration in certain areas. Neither the fibrillæ nor the peritendineum show an evidence of proliferative changes.

Fig. 8.—Fascial transplant removed after fourteen days. The transplanted tissue preserves all of the characteristics of normal fascia.

CHANGES IN SIZE OF THE FIBRILLÆ AND EDEMA OF THE TRANSPLANT

In the transplanted tendons, after three and five weeks, the fibrillæ seem to be larger than normal, and many seem to be gnarled and twisted, the bundles of fibrillæ often being separated by a granular mass. Although these changes are most marked in the three and five weeks old transplants, they are also observed as late as fifty-nine days after the tendons have been exchanged.

These changes we believe to be due to an edema of the transplanted segment resulting from an imperfect reestablishment of the circulation. They are not of a regressive character, for both the fibrillæ and the nuclei

Fig. 9.—Cross-section of a piece of fascia from the rectus abdominis transplanted into the subcutaneous fat of the abdomen and removed twenty-three days later.

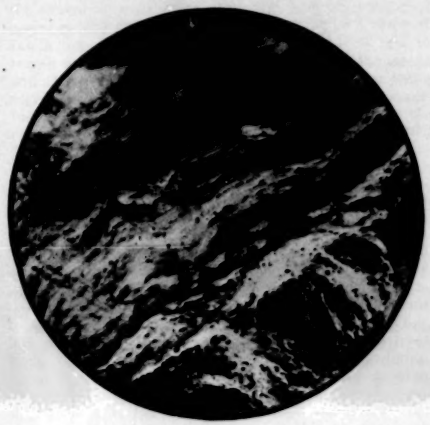

Fig. 10.—Longitudinal section of a piece of fascia removed from the rectus abdominis and transplanted into a subcutaneous pocket in the abdominal wall. Fascia examined thirty-five days after transplantation.

react normally to stains. This edema may account in part for changes in the size of the transplant.

While in all the transplants there are evidences of regressive changes in small areas, the fibrillæ having undergone hyaline changes or appearing granular, the transplant as a whole remains alive, not being invaded by either leukocytes or round cells. A transplant, examined after fifty-nine days, has practically the appearance of normal tendon and moves readily beneath the skin. The cell mantle has been greatly reduced in size, and the cut surface has a white glistening appearance. But even in cases in which the transplanted segment resembles so closely normal tendon, the three bundles normally found in the tendo Achillis have fused so that they can no longer be isolated, and the tendon is larger than the normal one on the opposite side.

The dog from which the tendon was removed for purposes of examination fifty-nine days after operation had been walking for five weeks with practically no limp and without any dropping of the foot, the transplanted tendon having restored completely the function of the leg. In our control animals, in which the segment removed was not replaced, there was never a restoration of function, although, in one case, after forty-five days, there was partial anatomic repair.

Fig. 11.—Deltoid paralysis of five years' standing following anterior poliomyelitis.

Fig. 12.—Ability to abduct the arm and maintain abduction after trapezius transplantation in patient shown in Figure 11. In this case it was impossible to suture the trapezius as low down on the humerus as desired. A piece of fascia lata was therefore transplanted directly between the trapezius, which had been freed, and the deltoid insertion to act as the tendon of the trapezius muscle.

The staining reactions of the nuclei and fibrillæ of the transplanted segment, the absence of leukocytic and round-cell infiltration, and the absence of any great number of karyokinetic figures, indicate that the transplanted segment acts as a true, viable substitute for the part which has been removed and not as a bridge for developing tenoblasts.

TRANSPLANTATION OF PIECES OF TENDON INTO THE SUBCUTANEOUS FAT OF THE ABDOMINAL WALL

In our second series of experiments, pieces of the tendo Achillis, measuring 1 or 1¼ inches in length, were placed in pockets made in the subcutaneous fat of the abdominal wall. The transplanted pieces were not united by suture to any of the surrounding tissues. They were removed for examination after seven, sixteen, twenty-three, twenty-eight, and thirty-five days. The changes observed in these transplanted tendons differ markedly from those described above, as occurring in tendinous transplants, which assume the function of the segment for which they have been substituted.

There is a tendency for pieces of tendon transplanted into the subcutaneous fat of the abdomen to become progressively smaller. Pieces of tendon, which measured 1 or 1¼ inches when transplanted, were only one-third as long or less when examined five weeks later. Although in this case the transplanted tissue had all of the physical properties of tendon and could easily be identified as such, there were no evidences of any proliferative changes such as occur in transplants which assume the function of the tendon for which they have been substituted. In a tendon removed four weeks after transplantation, the three bundles occurring in the normal tendo Achillis could still be isolated, surrounded by its synovial sheath. After transplantation into the subcutaneous fat, the tendon shrinks to form, in those cases examined some time after the operation, a small ball of tendinous material. These transplanted pieces form with the subcutaneous fat close adhesions, but the line between the tendon and fat is sharply demarcated.

Microscopic examination shows that the fibrillæ and nuclei stain well and that the piece of transplanted tendon may be regarded as viable. There is some leukocytic and round-cell infiltration. The most striking difference between transplants which have assumed early the functions of the segment for which substituted and those which have been placed into the subcutaneous pockets without assuming function, is the absence of any proliferative changes in the peritendineum, of the latter. The peritendineum of pieces of tendon transplanted into the abdominal wall is perfectly passive, there being no effort to form a cell mantle. Apparently there is also no edema of such a transplant. Such a transplant may be compared to a paralyzed limb. It has circulation and is viable, but becomes shrunken and differs in many ways from a transplant which has assumed the function

of the tendon for which it has been substituted. Some of these differences may be accounted for by the early establishment of circulation from the end of the muscle, in those cases in which the tendon has been substituted, for a tendon which has been removed. Transplanted tendons which assume function early, do much better than those which are immobilized for long periods of time, both regarding the viability of the transplanted segment and the freedom with which they move beneath the skin. Sutures, such as those recommended by Dreyer or Fritsch, which do not strangulate the tissue, but still insure a union so firm that the tissues cannot be separated by movements begun shortly after the operation, should be employed.

TRANSPLANTATION OF FASCIA

Kirschner, while experimenting on the direct transplantation of tendons, was the first to suggest that fascia might be used to repair defects in tendons. In discussing the possibility of fascial transplantation, he remarks that we have in fascia, especially in the fascia lata with its strong iliotibial band, a tissue which can be easily used in bands of practically any length or breadth, and in almost unlimited amounts without interfering with the function of the structure from which it is removed. These strips may be used either in the form of narrow strips or sewn into the form of a tube uniting the ends of the tendon which is to be repaired.

In determining the viability of fascia, we have transplanted into the subcutaneous fat of the abdomen or under the skin of the thigh either pieces of the fascia lata or of the sheath of the rectus abdominis. The pieces which were transplanted measured ¾ of an inch in length and ½ an inch in breadth. These transplanted pieces of fascia were examined after four, ten, fourteen, twenty-three and thirty-five days. Transplanted pieces of fascia, when not sutured in position, curl up and become smaller than when first separated from the fascial band or aponeurosis. The changes in form and size of the transplanted pieces apparently depend on the direction of the tension planes of the fibers in the piece transplanted. In these experiments the transplanted fascia was not sutured in position, because we desired to subject the transplanted tissue to a severe test, and a line of suture would favor the early development of circulation in the transplanted fascia. As the transplanted fascia curls up, it is necessary to cut the transplanted tissue somewhat larger than the defect to be covered, in order to insure against undue tension.

The fascia examined four days after transplantation was removed from the sheath of the rectus abdominis and placed in the subcutaneous fat of the abdominal wall. After four days, when the dog was killed, the transplant preserved all the characteristics of fascia. It had become somewhat reduced in size, because it was somewhat curled on itself. The fascia had contracted slight adhesions with the subcutaneous fat, but could be moved easily under it. On histologic examination the fibers of the fascia reacted normally to stains. A layer of leukocytes with some round cells surrounds the transplanted tissue, but has not invaded it.

The fascia examined ten days after transplantation was a piece of about the same diameter as that mentioned above. It was removed from the fascia lata and placed on the same fascia at a lower point without suturing. When examined after ten days, the transplanted piece was adherent to the fascia lata by a thin layer of granulation tissue and fibrin. It had all of the characteristics and microscopic features of normal fascia.

Figures 8, 9 and 10 indicate the condition of transplanted pieces of fascia after fourteen, twenty-five and thirty-five days. In Figure 8 the transplanted fascia has been cut parallel to the long axis of its fibers. The subcutaneous fat is adherent to the transplanted tissue, but there is very little reaction about the fascia, but few leukocytes and round cells, none of which have invaded the transplant, being found. Figure 9 represents a cross-section through a piece of fascia examined twenty-three days after transplantation. The fibers of the fascia which are cut transversely stain normally. There is considerable leukocytic and round-cell infiltration in this case at the margins of the transplanted fascia. There has been, however, but little invasion of the transplanted tissue, and this has occurred about the septa separating the different bundles composing the fascia.

After thirty-five days the transplanted fascia has contracted firm adhesions with the subcutaneous fat and has been considerably reduced in size. The piece transplanted still preserves all the physical characteristics of fascia, although it is considerably more resistant than at the time of transplantation. The fibrillæ of the transplanted fascia react normally to stains, preserve their wavy characteristics and are not invaded by leukocytes or round cells. This piece of fascia, thirty-five days after transplantation, although it is somewhat reduced in size, is viable and could be used as a substitute for tendons when repairing defects in the latter.

Fascial grafts have been used in a few instances to transplant a muscle to a new insertion or to correct a deformity, such as a drop shoulder resulting from paralysis of the spinal accessory nerve. Payr, mentioned by Kirschner,[9] has used a piece of fascia lata to correct a congenital ptosis in a boy 12 years of age, after an unsuccessful attempt with the silk-strand method. At the second operation, the scar remaining from the first operation and the silk tendon were removed. A piece of fascia lata measuring 2 cm. in width and 10 cm. in length was then removed and sutured below to the tarsus and above to the frontal muscle, enough tension being maintained to elevate the lid. Another transverse incision was then made, two fingers' breadths above the original wound, and after the skin was undermined the fascia was again sutured to the frontal muscle. The result was almost perfect, as after the operation the opening and closing of the lids is the same on both sides. Rothschild[10] has transplanted with success a piece of fascia lata to correct a functional disturbance, due to paralysis of the trapezius muscle. In this case a piece of fascia lata 20 cm. long and 4 to 5 cm. broad was sutured to the vertebral border of the scapula and to the supraspinous ligament, thus correcting the drop shoulder.

We have transplanted pieces of fascia lata into the hand, when attempting to restore anatomic conditions destroyed as the result of a burn or injury. In the two cases in which we have transplanted fascia into the palm, the grafts have apparently healed for they have not been extruded.

Recently, while transplanting the trapezius to correct a deltoid paralysis of five years' standing in a patient kindly referred by Dr. J. L. Porter of Chicago, we were unable to use the cleido-occipital portion of the trapezius because it was involved in the paralysis. The acromial and spinous portions of the trapezius were then

9. Kirschner: Die praktischen Ergebnisse der freien Fascientransplantation, Arch. f. klin. Chir., 1910, cxii, 888.
10. Rothschild: Ueber funktionelle Heilung der Cucullaris-Lähmung mittels freier Fascienplastik, Zentralbl. f. Chir., 1910, No. 45, p. 1441.

freed, but we could not suture them as low down on the humerus as we desired. A piece of fascia lata measuring 3 inches in length and 1½ inches in breadth was then removed and sutured into the trapezius above and into the deltoid tendon at its points of insertion below. A thin layer of fat was removed with the fascia. The fat was placed next to the shoulder-joint and the neighboring tissues, in order that the transplanted fascia would not adhere to the subjacent structures. In this case a portion of the pectoralis major muscle was freed and attached to the humerus above the deltoid insertion, with the idea that this muscle might aid in bringing the arm upward and forward. The paralyzed deltoid muscle was then imbricated over the fascial transplant being sutured to the trapezius muscle. The wound healed by primary union.

Seven weeks after the operation, the patient could abduct the arm to 70 degrees, and could maintain it in this position for some length of time.

The success accompanying the few cases in which fascia lata has been transplanted directly to form tendons, warrants a more extensive use of it for this purpose, for it has considerable resistance, its elasticity is greater than that of tendon, and its thinness practically guarantees the nutrition of the piece transplanted. We are indebted to Dr. E. Kirk and Dr. A. M. Moody for the preparation of the sections from which the accompanying photo-micrographs were made.

ABSTRACT OF DISCUSSION

Dr. Leonard W. Ely, Denver: Rehn seems to have gone furthest in this line heretofore, but his work is characterized largely by scolding and by credulity. As I understand it, he implanted a piece of tendo Achillis in the walls of the abdomen, and because one layer was better developed than another, he deduced that motion was necessary.

He believed the story of some civil engineers who had been in China and had heard of this reparative tendon work there. There are many branches of scientific knowledge which seem to be so limited in application that we wonder where their particular value will come in, and I had been inclined to look at this tendon and fascia transplantation more as an interesting abstract study than anything else. Rehberg is reported in the *Berliner Klinische Wochenschrift* as having trephined for traumatic epilepsy, removed the thickened dura and transplanted fascia lata in its place, with great success. No praise for such work as this of Dr. Lewis' can be too high.

Dr. Kenneth A. J. Mackenzie, Portland, Ore.: I think we are all agreed that so far as treatment of traumatisms which have led to the creation of big gaps in tendons the problem is solved by this procedure. I notice that in the abstract of this paper reference is made to the use of tendons to fill gaps created by trauma in the case of nerves, although I do not think that Dr. Lewis made any reference to this in his paper.

It would seem to me that the fact that has been well brought out, that when the tendon is implanted remotely in the tissues no cellular infiltration takes place in the graft and no histologic changes except apparently normal changes, would lead fairly to the conclusion that the tendon might be very useful as a conduit for nerve flaps or grafts, the tendon being used as a container or carrier. I should like to have heard some reference in the paper as to what has been done with the tendon in this connection. Those who are confronted with cases in which nerves have been destroyed over long stretches will find a good deal of comfort in the fact that even in the case of very large gaps in nerves, bridging may be done by the use of very long flaps when properly protected.

In a case that I reported two years ago the sciatic nerve was the seat of malignant tumor, and the entire trunk of the sciatic was resected. Flaps from the popliteal branches were lifted up at different times two weeks apart; these flaps were 19 inches in length, the gap in the sciatic being 12 or 13 inches in length. The ends of these flaps were brought up to the truncated end of the sciatic at the lower point of section, one popliteal end was anastomosed into the other and the slender flaps bridging the gaps were sutured into the sciatic trunk above, the grafts being placed in separate muscular beds by suture. At the end of eighteen months the functional results were so satisfactory that the man could walk and work as well as formerly without aid to locomotion, although, of course, there was a permanent and extensive impairment of the sciatic sensory area.

Dr. Joseph Kurtz, Los Angeles: Since 1903 I have practiced rather extensively tendon transplantations. In 1903 I had the pleasure of being in Europe with Lange of München and Wolfius of Heidelberg, the two men who did more for tendon transplantation than all the rest of the surgical world. The art of transplantation, if I may say so, has long since passed its experimental stage; it is as perfect as an amputation or a laparotomy. We know now perfectly well what we can do. We take a healthy tendon and transplant that into a weak tendon, or part of a healthy muscle into a muscle that is weakened either from paralysis or injury and fortify it.

The tendon or muscle which is fortified by transplantation of healthy tissue, becomes practically healthy normal muscle or tendon. The change in the tonicity of the tendons is remarkable. You know that a diseased tendon is flabby; it has lost its luster, its ivory shine, and as soon as you have implanted a healthy or part of a healthy tendon into such a diseased tendon, you can notice after three or four weeks, if you should get the opportunity to see it, that this fortified, originally diseased tendon looks just as bright as the one that has been implanted into it.

Now the greatest use of tendon transplantation is made in those conditions which are left after cases of anterior poliomyelitis. How long is it since we have really considered that a paralytic club-foot is curable? I do not believe it is more than five years. We can transplant the adductors into the abductors, or *vice versa;* the flexors into the extensors, or *vice versa,* in club-foot; and we can do the same thing with the arm, as has been explained, with perfect results as to function. Within one month the function, if not perfect, is at least good. Within a year, I venture to say, after operation, the functions in the originally diseased tendons become as good as in any of the other tendons.

Dr. Dean D. Lewis, Chicago: In the abstract we referred to the use of fascia in the form of a tube, which might be used in the repair of nerve defects; the ends of the fascial tube being sutured over the ends of the nerve, thus forming a tunnel of living tissue through which the regenerating nerve fibers could pass.

I admit that the method of tendon transplantation or transfer which Dr. Kurtz was discussing is not in an experimental stage. The work of Vulpius and Lange has shown this. Lange's periosteal silk strand method is an accepted and most valuable procedure in treating paralysis following poliomyelitis. But in traumatic cases or the results of sloughing of infected tendons, bad results may follow the use of the artificial silk tendon. Lange himself says in a recent article that in these cases the silk tendon may be contra-indicated and that the method of direct fascial transplantation may be the one of choice.

Graves' Disease at the Age of 10.—The case of J. W. H., boy, aged 11, who exhibited undue prominence of the eyes at the age of 10, is reported by W. Essex Wynter (*Proc. Roy. Soc. Med.*, June, 1911). When admitted to Middlesex Hospital in March, 1911, there was obvious proptosis, with all the usual signs. The thyroid gland was enlarged, both isthmus and lobes; the fingers when extended, exhibited fine tremor; the skin was moist and flushed and about the hands and neck showed yellowish pigmentation. There were no cramps, but the patient had faint attacks, flushes and occasionally showed some temporary puffiness of the face. There was incontinence of urine; the urine was clear, amber-colored, acid, specific gravity 1,015 and contained a trace of albumin. The pulse ranged from 92 to 124.

THE INFLUENCE OF CLIMATE ON MIDDLE-EAR DISEASES AND THEIR PREDISPOSING CAUSES *

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The intimate relationship between diseases of the middle ear and abnormal conditions in the nose and throat has furnished a theme rich in interest for the otologist on the one hand, and no less attractive to the rhinologist on the other. Both have studied this relationship, which has strengthened as the work has progressed. The former arbitrary separation of diseases of these organs having been outgrown, there has arisen between them a mutual dependence, of which reports of modern progress are full and convincing. That the nose is the seat of numerous predisposing causes of middle-ear diseases is generally admitted to-day, whereas a few years ago no such relationship was dreamed of. In the symposium under discussion, a consideration of climate which lost sight of the interdependence of affections of these mutually related organs would entirely fail in its comprehensiveness.

Permit me, at the very outset, to make it plain that I am not dealing with climatic treatment of middle-ear disease. Climatic treatment, *per se*, like any other treatment *per se*, would fail to meet adequately all of the indications of any class of cases. The direct influence of climate alone on established middle-ear disease is very slight, whereas the indirect influence on the predisposing causes is considerable. As the majority of middle-ear diseases are secondary, so climatic influence is greatest indirectly. It is not my aim to underrate the importance of the surgical treatment of predisposing conditions in the nose and throat. On the contrary, I accept them all, if indicated. Neither is it intended to minimize the merit of constitutional or local treatment. I wish merely to present briefly a few such observations and opinions as will emphasize the importance of climate from a prophylactic and therapeutic standpoint. From a mere viewpoint of definite cure of chronic cases of middle-ear disease, climatic influence seems not to take a high place, since few patients are cured by it alone, compared with cures obtained from other lines of treatment. It seems to me, however, that reports of cures of these convey an inadequate idea of the influence of climate on conditions admittedly predisposing to middle-ear disease.

That there is enormous worth in intranasal surgery, removal of tonsils, adenectomies, etc., is not denied, but when it is remembered that complete obstructions in both nostrils may continue for some time without affecting the hearing; that the pernicious furor to attack every irregularity within the nose has led to a large amount of unwarranted operating in the nose and throat; that intranasal operations have frequently been done on patients whose conducting apparatus had already been injured by pathologic processes; that adenoid operations have often failed to ameliorate the symptoms for which they were performed; that we can have middle-ear inflammation and suppuration without enlarged tonsils and adenoids; when we recall facts like these, we can begin to rate, at something like their true value, other lines of treatment and question whether surgical operations are always of the transcendent importance assumed.

While it is impossible, in the brief time at my disposal, for me to take up a discussion of climate in general, I may enumerate a few of the characteristics of the climate, altitude and environments of Colorado, New Mexico and Arizona and the influence they produce on the body, and leave to your judgment the effect of opposite conditions. This portion of the Rocky Mountains has a moderate temperature and a decidedly dry atmosphere. It varies in altitude from 4,000 to 9,000 feet with numerous mountain peaks from 10,000 to 14,000 feet, the temperature varying with the altitude. My personal observations are drawn from a residence of five years in western New Mexico, very near the Arizona line, at an elevation of 6,000 feet, and seven years in southeastern Colorado at an elevation of 4,700 feet, both of which might be classed as moderately high elevations. The air is dry, having a low degree of absolute and relative humidity. It is pleasant, tonic and stimulating, with a minimum of those properties that depress and debilitate. There is a maximum of sunshine and the sun's rays are intense. The atmosphere contains few impurities. Owing to good natural drainage, the desiccating action of the atmosphere, and the rarefaction of the air and intense solar heat, the soil dries rapidly, and bacterial activity and multiplication are strongly inhibited. Solly, in his admirable textbook on climates, states that "the air is aseptic and antiseptic." A verification of this statement is found in the manner in which the Mexican preserves his beef and mutton. Pieces of meat are strung on a line and dried in the sun as we dry laundry. His *carne* receives no other treatment for its preservation. Animals die and decompose on the plains, producing but slight odor. The offensive malodorous, nauseating breath of atrophic rhinitis loses much of its unpleasantness. The properties of the atmosphere and sun that cause these conditions, inhibit the action of bacterial infections of the nose, throat and upper respiratory tract, as well as infections in general, and hence indirectly favor the integrity of the ear.

Dr. W. Freudenthal[1] has said, regarding the evil effects of dry, foul, overheated living-room air as a cause of nasopharyngitis:

> If we compare our mode of living with that of a hundred or two hundred years ago, we must confess that we have returned to a very ancient style of living. We have become, *mutatis mutandis*, actually cave-dwellers again. In a ten by fifteen room the average human being passes twenty-three of the twenty-four hours of the day, or even more. The room is nothing but a cave-dwelling, with the exception that it is tightly closed from all sides during the greater part of the year. It makes little difference whether we call this cave a sitting-room in a fashionable house, or whether we term it a sweat-shop. The difference is only in degree. The room is, as a rule, tightly closed against the invasion of fresh air.

Although some of us of the dry and sunny Southwest may not ventilate as we should, most of us live in strong contrast to the conditions above quoted. The pure air, the stimulating breezes, the few mists, fogs and clouds and the great number of sunny days are constantly inviting people into the open and even lead them to sleep out of doors, both summer and winter. The sleeping-porch and the tent-house, which originated here, have done so much for the prevention and cure of nasal, throat and respiratory affections that their service is no longer limited to this region.

* Read in the Section on Laryngology, Otology and Rhinology of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

1. Freudenthal, W.: Some Hints on the Treatment of Chronic Nasopharyngeal Catarrh, William Wood & Co.

That the inhabitants of the region under discussion do have colds is not denied, but I have repeatedly been told by patients that their "habit of catching cold" in the East had left them since coming here. This is particularly true of those who sleep on porches or within tents. Fortunately for our people, the umbrella, rubber overshoes, raincoats, etc., which pamper our bodies and act on our *pars minoris resistentiæ*, are rarely used. When we remember that dirty streets, foul air, acrid vapors, overheated rooms, cloudy weather, and wet walks and soil are at a minimum, and that there is a maximum of bright clear days, a pure atmosphere and a dry soil, we can appreciate that in this locality many of the conditions predisposing to colds and indirectly to middle-ear disease, are wanting.

The atmospheric properties are stimulating to the respiratory, circulatory and nervous systems. The vasomotor nerves are, therefore, generally in a healthy state and hence the body resists taking cold. There are two theories regarding the etiology of cold: one, that the cause is an infection; the other, that there is a vasomotor change consequent to exposure, environment, etc. Whether one inclines to the former or to the latter view, I am certain of the fact, based on practical observation as well as on theoretical considerations, that acute colds and acute inflammatory conditions of the nose, throat and ear prevail here with considerable less than average frequency.

Adenoids have been attributed to nearly everything. Although there is much lack of uniformity of opinion on the multitudinous causes generally set forth, I believe that the majority of observers are in accord with the theory that frequent colds, damp, cold, cloudy, changeable weather and badly ventilated, overcrowded rooms increase the percentage of these vegetations. Granting that this is true, it follows that our climate, habits of life and environment naturally mitigate the harmful influence of these causative factors.

Nasal obstructions are of two varieties, hard and soft. The hard variety includes pathologic conditions in the osseous and cartilaginous structures. Except in cases of very moderate degree, they require surgical correction. Climate, unaided by other accepted methods of treatment, could have no trustworthy effect on the real condition in bad cases, although it might change the symptoms considerably, and, I am sure, if judiciously selected, it would improve accompanying conditions, increase the patient's comfort and enhance the postoperative results.

On various occasions, I have left my practice for a course of study in, or visit to, some of the cities of low elevation and damp climates. I have been strongly impressed with the fact that soft tissue obstructions are much less general and are of a milder grade in a dry than in a humid climate. Acute purulent rhinitis in children almost never exists, and acute obstructive conditions of the soft parts are much less severe. The red, swollen, boggy, discharging condition of the mucous membrane and underlying spongy tissue occurs much less frequently in the child, and there is a corresponding decrease of chronic enlargements with accompanying stenosis in the adult.

The lamented Dr. Solly first called our attention to the shrinkage of the mucous membrane and the underlying vascular and glandular tissue with coexisting decrease of nasal discharge. These facts have been impressed on me in clinics and in case histories. My experience with and impressions from the use of cocain and adrenalin solutions were obtained in Vienna and London. The shrinkage caused by their application to the mucous membrane was much less marked and fewer cases responded to their use in Colorado than in those cities or Chicago.

The absence of these obstructive conditions affords better drainage and ventilation to the nose and ear, and may entirely relieve all the symptoms unless hard obstructions exist, and even then their absence would ameliorate the effect. This increased nasal space is beneficial to respiration and drainage and, hence, indirectly to the maintenance of normal hearing. The majority of diseases of the middle ear either occur or begin in childhood when the ear is least in condition to stand harmful influences. Even the adhesive process of later life has its foundation laid during the tender period of childhood. I am convinced, from the examinations for the public schools, that otitis media is less frequent among children here than in a damp climate. Acute tubotympanic catarrh seems to be less frequent and of shorter duration and less inclined to recur. This is due to greater nasal and tubal lumen, an advantage of great importance to the child, whose anatomic and physiologic conditions directly facilitate tubal obstruction. The horizontal tube, the increased vascularity of the underlying mucous membrane, and the increased physiologic activity of the child, coexisting as they do, afford adverse conditions which may, by a very slight change, entirely complete the tubal occlusion with all its consequent damage to the ear. The removal of adenoids, tonsils, etc., employed everywhere for the improvement of these cases, seems to improve them more in a dry than in a humid climate.

Climatic influence on the prevalence and character of acute catarrhal or acute suppurative otitis media, depends on the cause. For instance, it might have very little effect on otitis complicating scarlet fever or measles, whereas its influence on the frequency and severity of otitis from cold in the head, hypertrophic rhinitis or nasopharyngitis would be considerable. In the former group of affections, the percentage of cases might be quite as great in a dry, elevated atmosphere as elsewhere, in strong contrast to the percentage in the latter group, which would be considerably less.

Dr. James Patterson[2] of Colorado Springs states that patients suffering from chronic suppurative otitis media "come to Colorado, of their own accord, yearly because they find the discharge lessens and their general condition is greatly improved by doing so." I have seen a few cases in which remissions were longer and in which improvement on changing from a humid to a dry climate simulated that experienced by some in a damp atmosphere when the weather changes from a humid, cloudy condition to a clear, dry atmosphere. In cases of suppuration of the middle ear without bone necrosis which continue to discharge despite the removal of the adenoids and tonsils, the patients should try climatic treatment.

In the southwest, tuberculous patients are numerous. The tuberculous and non-tuberculous suffer from the same middle-ear diseases. The affections in the tuberculous, however, and by that I mean the pulmonary form, are modified by the constitutional condition of the individual and by the relative increase in the number of cases that acquire tuberculosis of the middle ear by auto-infection. Ordinarily, suppurative otitis media in the tuberculous runs an uncommonly chronic course. Many of the patients improve on changing to a dry cli-

2. Patterson, James: The Climate of Colorado Etiologically and Therapeutically Considered, Laryngoscope, September, 1908.

mate. Comparatively few of this number fail to derive benefit from accompanying aural affections. Of all ear affections, there is none in which climate is of such comparative reliability as in those accompanying pulmonary tuberculosis in which the general condition will support the infection. Those early cases with sufficient vitality to improve do infinitely better here than elsewhere, owing to the stimulating effects of the environment, altitude and atmosphere on the general health of the individual, thus indirectly alleviating the ear disease. A necrosis of the temporal bone that would seem trivial in a healthy individual, might be serious in the tuberculous patient.

Tuberculosis of the middle ear is so insidious in its onset, so complex in its course and so disastrous in its ultimate effects, that an early diagnosis and prompt treatment are paramount. The favorable opportunity for the arrest of tuberculous otitis, even more than in other forms, is in the beginning. The successful treatment of tuberculous infections hinges on the development of an immunity which, in turn, depends on healthy constitutional conditions. Immunity is obtained by furnishing the patient freely with good food, pure open air day and night and a maximum of sunshine. The effect of all these agencies is enhanced in the Rockies. There is surprising increase in appetite, weight, hemoglobin and metabolism. Dr. De Forest Willard[3] says: "For thirty years, even before Koch's discovery of the tubercle bacillus, I have persistently advocated and practiced the fresh air method of treatment for tuberculosis of the hip and spine and have never known it to be without benefit." Precisely the same is true of the open-air treatment of tuberculous otitis, and there is no place under the sun quite so favorable for ideal open-air treatment as is the Southwest. Here the climate, by its beneficial influence on the patient and its destructive action on the tubercle bacilli, affords the most favorable opportunities for ideal open-air treatment. Here the climate has a powerful influence on the treatment, whether it be local or surgical.

In case of hypersecretion with turgescence of the mucous membrane and underlying spongy tissue of the tube and nasopharynx; in secretory catarrhal affections in which, despite the removal of nasopharyngeal obstructions, ample tubal nasal lumen cannot be obtained; in patients operated on for obstructions without improvement in hearing, on account of an unhealthy state of the mucous membrane; as an accessory treatment to intranasal surgery and as an aid to the constitutional and local treatment of catarrhal otitis media, climate plays an important rôle. A large percentage of cases of secretory and dry catarrhal otitis media, which develop in a damp, changeable climate and which are aggravated by inclement weather, improve in a dry climate and may be permanently arrested, unless there has already taken place too much hypertrophy and atrophy of the sound-conducting mechanism.

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Pulse-Rate in Male and Female.—A. H. Stewart says in the *Medical Record* that in man, as in nearly all animals, the pulse-rate is slightly slower in males than in females, in the proportion of 72 per minute for men and 80 for women. But as slowness of pulse, like slowness of respiration, nearly always goes with increased weight, the difference is probably no greater than would naturally be expected. In old age woman's pulse-rate is inclined to increase slightly more than man's.

3. Willard, De Forest: Open-Air Treatment of Surgical Tuberculosis, Tr. Internat. Cong. Tuberc., 1908.

HOW FAR MAY CONDITIONS IN THE NOSE AND THROAT BE RESPONSIBLE FOR MIDDLE-EAR DISEASES?*

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I have confined myself to a discussion of the extent to which diseased conditions of the nose and throat are either directly or indirectly a factor in the production of diseases of the middle ear.

That involvement of the middle ear is, in a great majority of cases, due to a diseased condition of structures contiguous to the Eustachian tubes is a fact on which all otologists are agreed. It is not a question, then, as to whether diseases of the nose and throat may be responsible for ear involvement; that question was quite definitely settled by Wilhelm Meyer[1] in 1870 when he published his paper on "Adenoid Vegetations in the Nasopharyngeal Cavity" and pointed out the effects of such growths in the causation of deafness. The questions at present are: To what extent are nasal and nasopharyngeal lesions responsible for deafness? What form of nasal and nasopharyngeal abnormalities are responsible for such ear complications. And are we attributing too little importance to the upper respiratory tract as an etiologic factor in the production of otitis media?

If there is a dark chapter in the history of otology, I think you will all agree with me that it is in the unsatisfactory and unsuccessful results with which we have to be content in the treatment of many of those cases of advanced adhesive processes of the middle ear attended by marked impairment of hearing, and, for that reason, another discussion and further emphasis of this clinical relationship between the upper respiratory tract and diseases of the middle ear seems advisable, although I regret that I have nothing new to present to you.

That impaired hearing is an extremely common affliction is evident, and of the different forms of deafness catarrhal otitis media and purulent otitis media furnish the vast majority of cases. Otosclerosis is not considered within the province of this paper, as, so far as I am aware, no evidence has been presented that it is due in any way to nasopharyngeal diseases or that any benefit is to be obtained by treatment directed thereto. Moreover, true otosclerosis furnishes such a small proportion of cases of deafness that it does not affect the importance of the subject under discussion.

Involvement of the middle ear may occur in the following manner: 1, through the external auditory canal, by involvement of the membrana tympani; 2, by the blood-vessels and lymphatics, and 3, by way of the Eustachian tubes. In considering the method of involvement of a middle-ear disease, it should also be remembered that any factor that impairs the vitality of the patient will be a contributing factor in the onset and progress of a middle-ear disease. I think it a conservative estimate to say that in 90 per cent. of all cases of catarrhal deafness and purulent otitis media the source of the involvement is by way of the Eustachian tubes.

Weil[2] examined 5,905 children and found that about 30 per cent. had some degree of deafness. Bezold[3]

* Read in the Section on Laryngology, Otology and Rhinology of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

1. Meyer: Med.-Chir. Tr., London, 1870, liii.
2. Weil: Quoted by Politzer, Diseases of the Ear.
3. Bezold: Quoted by Politzer, Diseases of the Ear.

found, among 3,826 children, that 20 per cent. had deafness. Cheattle[4] examined 1,000 school children and found 335 had a discharge from one or both ears. Preysing[5] examined 100 children (post mortem), aged 1 day to 3 years, deaths due to various causes, and found that eighty-one showed middle-ear disease.

Miller[6] examined fifty cases (post mortem), and thirty-seven showed pus in one or both ears. Meningitis was found in ten cases and eight of them showed pus in the middle ear. Randall[7] states that one-third of all adults are deaf in one or both ears and that among school children 25 per cent. are deaf. Bardes[8] estimates that two-thirds of the people have an aural defect. Barth[9] places the percentage of all children having otitis media during the first year of life as high as 80.

Bryant[10] states that the middle ear is involved in 98 per cent. of all cases of deafness; that the middle ear alone is involved in 84 per cent. of the cases, and that chronic middle-ear catarrh furnishes 69 per cent. of all cases of chronic deafness. Bürkner[11] states that among every 100 cases of ear disease, 67 per cent. are cases of middle-ear disease.

Diseased conditions in the nasopharynx are a prolific source of involvement of the Eustachian tubes and cavum tympani which may be caused in the following ways:

1. By mechanical obstruction of the osteum of the tube by large masses of adenoid tissue or by smaller masses situated laterally in the nasopharynx and encroaching on the orifice of the tubes and interfering with ventilation and drainage from the middle ear. This mechanical theory to account for the involvement of the Eustachian tubes by adenoid masses is one that has been quite generally accepted by otologists in the past. I believe that its importance has been greatly overestimated and that an extension of the adenoid mass to the opening of the Eustachian tube is the exception.

2. By direct extension of an inflammatory process from the nasopharynx to the pharyngeal opening of the Eustachian tube thus causing obstruction and infection from involvement of the tubal mucous membrane.

3. By entrance of mucous and infected material into the fossæ of Rosenmüller and into the pharyngeal opening of the Eustachian tubes, due to the presence of hypertrophied glandular tissue or to a chronic hypertrophic or atrophic pharyngitis.

4. By interference with the action of the tubal muscles, the levator palati and tensor palati, the proper and normal function of which is so necessary in maintaining normal ventilation and drainage of the middle ear.

5. By the presence in the fossæ of Rosenmüller of accumulations and adhesive bands, often the remains of former adenoids, or due to operative measures for the removal of adenoids.

6. In occasional cases, proper passage of air into the middle ear may be interfered with by paralysis of the fauces, resulting in an interference with the action of the tubal muscles.

7. By tumors of the nasopharynx.

8. By blood-vessels and lymphatics.

9. By adhesions of the soft palate to the pharyngeal wall.

The presence of hypertrophied glandular tissue in the pharynx and epipharynx is the most frequent source of middle-ear disease. That a considerable proportion of children, as well as many adults, are afflicted with adenoids, is a fact well known not only to the medical profession but to the laity. It is also a well-recognized fact that disease of the middle ear among children is very frequently due to adenoids, but I do not believe that the fact is sufficiently emphasized by otologists that many cases of deafness, which apparently have their origin in adult life, are due to the presence of adenoids during the early years of the life of the individual. While ear involvement is the most frequent complication of adenoids in children, yet it frequently happens that the involvement of the Eustachian tubes and tympanum is mild in character, not attended by pain or marked impairment of hearing, and is so insidious in its onset that it escapes attention. These repeated attacks of Eustachian salpingitis may be the cause of what is apparently a beginning chronic catarrhal otitis media in adult life. Kopetzky[12] found that 27 per cent. of adult cases showed the origin of the ear involvement to be in childhood. Barbarin[13] found that out of 100 cases of chronic middle-ear suppuration among adults, forty-two were traceable to infancy or childhood. The statement of Makenzie that the discovery of adenoids by Meyer had saved 100,000 people from deafness is a conservative one. A reference to the published statistics of different writers on the occurrence of middle-ear disease, as a complication of adenoids, will show a great lack of uniformity as to the frequency of this complication. This may be due, in some cases, to the class of patients from which the material for examination is obtained, or it may be that ear complications occur more frequently in some countries, or in certain portions of a country, than in others, or it may be due to the manner in which such examinations are made. If a careful objective examination were made in those cases of adenoids where there are no subjective symptoms or history indicating ear involvement some change would be found in the appearance of the membrana tympani in a very large proportion of cases, indicating some interference with the ventilation of the middle ear. Intermittent attacks of deafness in young children, occurring in connection with an acute coryza, are due to acute congestion of existing adenoid tissue with temporary involvement of the Eustachian tubes. Recurring attacks of subacute otitis media, usually mild in character, where the child complains of ear-ache for a short time, are due to temporary closure of the Eustachian tubes as a result of adenoids. Exclusive of the ear complications of the acute infectious diseases, a vast majority of the cases of acute purulent otitis media in children is due to adenoid tissue. In many of these cases there is no history of nasal obstruction or of mouth breathing and the only subjective symptoms are the attacks of ear involvement and of acute coryzas.

Arslan[14] found, in a series of 426 cases of adenoids, that 59 per cent. had ear complications. Barth[15] found 30 per cent. of adenoid patients had middle-ear disease. Wood[16] found 42 per cent. of adenoid cases had ear complications (149 cases). Kerrison[17] examined fifty children who had adenoids and found forty-five of them showed some evidences of aural disease, many of the cases showing greater retraction of the membrana tympani than usually accompanies tubal obstruction in adults.

From an examination of the records of 600 cases of adenoids, I found middle-ear involvement in 31 per cent. In my cases, only such ear complications were

4. Cheattle: Quoted by Miller, Brit. Med. Jour., 1907, ii, 1772.
5. Preysing: Schmidt's Jahrbücher, 1906.
6. Miller: Brit. Med. Jour., 1907, ii, 1772.
7. Randall: Am. Jour. Med. Sc., July, 1910.
8. Bardes: New York Med. Jour., Dec. 24, 1910.
9. Barth: Ztschr. f. Ohrenh., 1898, xxxii.
10. Bryant: New York Med. Jour., May 23, 1908.
11. Bürkner: Quoted by Politzer, Diseases of the Ear.
12. Kopetzky: Ann. Otol. Rhinol. and Laryngol., 1907, xvi, 621.
13. Barbarin: Quoted by Kopetzky.
14. Arslan: Quoted by Herzig, New York Med. Jour., Feb. 6, 1909.
15. Barth: Monatschr. f. Orhenh., 1897, xl.
16. Wood: Am. Med., Oct. 3, 1903.
17. Kerrison: New York Med. Jour., 1906, lxxxiii, 816.

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noted as were revealed by subjective examination. Barstow[18] reports that out of fifty-seven cases of adenoids in adults, twenty-five of the cases had aural complications. I have also called attention[19] to the frequency of adenoids in adults and to their influence in the production of middle-ear disease.

The presence in the fossæ of Rosenmüller of accumulations of lymphoid tissue, or of adhesive bands, is a frequent source of middle ear involvement. In many cases these accumulations in the fossæ are the remains of adenoid tissue present during childhood. Logan[20] has called attention to the presence of chronic epipharyngeal periadenitis in adults as a cause of middle-ear disease. He has shown, by pathologic examination, that the disease involves not only the glandular structure but extends to the muscular, vascular and connective tissues and considers it of special importance with reference to the tubal muscles. He reports 284 cases, between 25 and 59 years of age, and of the 284 cases, 210 had chronic progressive deafness; twenty-four were subject to recurrent attacks of acute otitis media; seventeen had chronic suppurative otitis media; thirty-three had no ear complications. Of the 210 cases of chronic progressive deafness, 182 showed improvement after the operation. Of the twenty-four cases of recurrent acute otitis media operated on, sixteen have had no recurrence. Of the seventeen cases of chronic suppurative otitis media, five have had no recurrence since the operation. The author found that these masses exist in greatest abundance in the fossæ of Rosenmüller. Emerson[21] frequently found degenerated tissue in the fossæ and showed that it is an important factor in causing or maintaining morbid conditions in the middle ear. Hays,[22] in a series of fifty cases of chronic catarrhal otitis media, varying in age from 5 to 70 years, found abnormalities of the nasopharynx in thirty-nine cases, and in thirty-three of them there was a diseased condition of the fossæ of Rosenmüller. He is of the opinion that adhesions are present in the fossæ in all cases of chronic catarrhal otitis media. Packard[23] has also called attention to the presence of adhesions in the nasopharynx and their influence on the middle ear. Jervey[24] has forcibly called attention to this condition and states that these formation bands in the fossæ consist apparently (1) of mucofibrous bands, or webs, generally in a perpendicular plane to the long axis of the fossa, and (2) of masses of granulation tissue, or hypertrophied glandular tissue, similar to adenoids, lying above, between and below these bands. He usually found them in adults and considered them as residua of old adenoids. Bryant[25] and others have emphasized the etiologic importance of adherent bands in the fossæ of Rosenmüller in the production of chronic catarrhal ottitis media.

Diseased faucial tonsils are an important etiologic factor in the production of disease of the middle ear, either directly or indirectly causing involvement of the Eustachian tubes. I believe this relationship between disease of the faucial tonsils and the middle ear has not been sufficiently emphasized. It is not at all unusual to have patients volunteer the information, immediately after a tonsillectomy under local anesthesia, that they can hear better, and this sometimes occurs with patients who have made no complaint as to their hearing and in whom a previous history has elicited no subjective symptoms indicating an ear complication. As diseased faucial tonsils are so frequently associated with abnormal conditions in the nasopharynx it is difficult to say to what extent the tonsils are the direct cause of such ear involvement. An associated nasopharyngitis may be, and frequently is, due to diseased tonsils and the secondary pharyngitis usually shows marked improvement on removal of the offending tonsils. The variety of diseased tonsils which I have found most likely to be the contributing cause of a middle-ear complication, is the deeply embedded diseased gland so frequently present in adult life and these tonsils may be the means of causing or maintaining a middle-ear complication as follows: by direct extension of a chronic inflammation to the orifice of the Eustachian tube; by direct pressure backward and outward in the tonsillar fossa, thus interfering with the ventilation of the tympanum; by maintaining a constant source of infection from which pathogenic microorganisms or infected mucus may gain entrance to the tubes; by interfering with the physiologic action of the levator palati and tensor palati muscles; by causing venous congestion of the blood-vessels, thus causing a constriction of the caliber of the Eustachian tube and interfering with the entrance of air into the tympanum; by infection through the blood and lymph streams.

Attention has been called to the effect of diseased faucial tonsils on the middle ear by Myles,[26] Reik,[27] Hays[28] and others. Hays, in his study of fifty cases of chronic catarrhal otitis media, found that in ten cases the faucial tonsils indirectly affected the ears and adds that the tonsillar condition was in all cases associated with some pathologic condition in the nose and this association produced abnormal conditions in the nasopharynx.

The clinical relationship of diseases of the middle ear to diseases and abnormalities of the nasal passages must be considered an indirect rather than a direct one. Reference to the literature of the past ten years will show a great diversity of opinion as to whether an abnormality of the nasal passages is responsible for an ear involvement. That a nasal obstruction, if unaccompanied by an inflammatory condition posterior to it and by a normal nasopharynx, will not be responsible for disease of the middle ear is probably true. That the nasal passages have too frequently been held responsible for ear diseases and that the nasopharynx has escaped its share of responsibility is also true. We are forcibly reminded of this whenever we are consulted by that numerous class of patients whose nostrils have been subjected to such radical operative work, for the relief of a middle-ear involvement, that there is hardly a normal functionating structure left within the nasal passages.

The presence of a nasal obstruction does not always mean that it is a factor in a middle-ear involvement. A marked deviation or irregularity of the nasal septum may be of such a character that it interferes but slightly with either the inspired or expired current of air. An obstructive lesion situated low down in the nostril may so interfere with the expired air that the nasal secretions accumulate and may give rise to a nasopharyngitis, or a violent expiratory effort in blowing the nose, may drive the infected secretion into the Eustachian tubes and cause an involvement of the middle ear. I

18. Barstow: New York Med. Jour., May 6, 1905.
19. Murray: Tr. Minnesota State Med. Soc., 1901, p. 107.
20. Logan: Tr. Am. Otol. Soc., 1909, p. 511.
21. Emerson: Ann. Otol. Rhinol. and Laryngol., 1907, xvi, 694.
22. Hays: Ann. Otol. Rhinol. and Laryngol., June, 1910.
23. Packard: Tr. Am. Otol. Soc., 1909, p. 505.
24. Jervey: THE JOURNAL A. M. A., 1908, l, 1600.
25. Bryant: Med. Rec., New York, lxxiii, 217.
26. Myles: Am. Jour. Surg., July, 1908.
27. Reik: Laryngoscope, 1908, xviii, 943.
28. Hays: Ann. Otol. Rhinol. and Laryngol., June, 1910

believe it may be stated, as a general rule, that any nasal lesion that is capable of causing a nasopharyngitis, or is attended by a purulent discharge, or so interferes with drainage of the nasal passages that the accumulated secretions may gain entrance to the Eustachian tubes, may be a cause of middle-ear disease.

A purulent discharge from an infected nasal sinus is a constant source of danger to the middle ear. This is particularly true of the sphenoid and posterior ethmoid sinuses the discharge from which passes backwards into the nasopharynx and is the cause of a nasopharyngitis, which, in turn, may extend to and involve the Eustachian tubes, or the purulent discharge may be blown into the tubes and cause an otitis media. Cobb[29] believes that in the treatment of chronic catarrhal deafness, the key to the situation is that most common of all causes of nasal catarrh, obstruction to drainage from the ethmoid cells, and he believes that the active factor in this obstruction is a peculiar formation of the middle turbinate. Jackson[30] of England believes that caries of the superior and middle turbinate and ethmoid cells is frequently responsible for middle-ear disease and quotes Woakes, who lays great stress on the association of deafness with atrophic changes in the ethmoid. Woakes[31] states that out of 921 cases of deafness, one in three and one-half (274 in number), showed also the presence of ethmoiditis. Of those showing both deafness and ethmoiditis, one in four had tinnitus only, one in twenty-five had vertigo only, and one in fourteen had both tinnitus and vertigo. Of the 647 of the 921 cases in which deafness was not associated with ethmoid disease, one in nine had tinnitus only, against one in four; one in 64 had vertigo only, against one in twenty-five, of the preceding 274; and one in thirty-two had both tinnitus and vertigo, against one in fourteen of the same group. Dundas Grant,[32] in his address before the American Academy of Ophthalmology and Oto-Laryngology in 1906, in discussing the question as to whether nasal obstruction, as such, can cause or keep up catarrhal conditions of the middle ear, referred to the report of Röpke of Solingten, who investigated the question of the influence of nasal obstruction on the ear and found that in a large majority of cases the hearing power was lower on the side on which the nose was obstructed. If there was lowered hearing power on both sides, it was almost invariably the ear of the side on which the nose was obstructed which was the worse. A further outcome of the investigations was that the hearing (in the majority of cases) was improved or even became normal within a few weeks after operative correction of the nasal obstruction, without catheterization or any other therapeutic measures being employed. He attributed the ear involvement to accumulation of secretions behind the obstruction and to their being driven up the Eustachian tubes. Grant does not refer to the character of the ear involvement present in Röpke's cases; a point of great importance in a consideration of the excellent results recorded by Röpke from nasal operation.

Atrophic rhinitis, usually accompanied by atrophic pharyngitis, is, in a considerable percentage of cases, complicated by middle-ear disease. Such ear involvement is due (1) to the atrophic condition of the mucous membrane of the pharynx, (2) to the patulous openings of the Eustachian tubes, as a result of the atrophic process, and (3) to the presence in the region of the tubal openings of crusts and mucopurulent discharge which may easily cause infection of the middle ear. Sendziak,[33] from a study of 1,142 cases of atrophic rhinitis, found aural complications present 166 times (14.5 per cent.). Wyss[34] found aural complications forty-seven times in sixty cases. Jurasz[35] found aural complications in twelve out of 170 cases of ozena.

Middle-ear involvement is one of the frequent complications of the acute infectious diseases of childhood. Statistics show that scarlet fever is complicated by ear involvement in from 12 to 30 per cent. of the cases, depending on the severity of the epidemic, and that measles is also complicated by ear involvement in about the same proportion. Statistics also show that a large proportion of those intractable cases of chronic purulent otitis media and of total deafness originate during an attack of the infectious diseases. What is the relation between the infectious diseases of childhood and diseases of the middle ear? During the acute diseases, most likely to be accompanied or followed by ear complications, such as scarlet fever and measles, there is present an acute inflammation of the nasopharyngeal structures which, in connection with the lowered resisting power of the patient and the short, wide, more nearly horizontal Eustachian tube of the young child, favors infection of the middle ear. In addition to this, if the patient has a nasopharyngeal obstruction, such as adenoids, which interferes with drainage or ventilation through the Eustachian tubes and furnishes a constant source of infection from microorganisms, there is added a very great source of danger to the middle ear. Moreover, after the onset of an acute purulent otitis media, during the course of an infectious disease, the presence of adenoids will be a most important factor in the continuance of the purulent discharge with resulting permanent deafness. In connection with this influence of adenoids on the middle ear during the course of the exanthemata, the investigations of Leland are of interest. Leland[36] examined 127 cases of scarlet fever at the Boston City Hospital. He found that eighty-four of the cases had adenoids and forty-three of the cases did not have adenoids. Of the eighty-four cases with adenoids, twelve of them, or 14 per cent., had ear complications, while there were no aural complications among the forty-three cases that did not show the presence of adenoids.

In connection with nasal and nasopharyngeal abnormalities it should be emphasized that any factor that lowers the resisting power of the patient, or a functional derangement of other organs of the body, may be an important factor in causing or maintaining the diseased condition of the upper respiratory tract, which may be the cause of a middle-ear involvement. This is particularly true of granular pharyngitis, which is often due to gastro-intestinal disturbances.

From this brief consideration of the etiologic relationship between diseases of the nose and throat and diseases of the middle ear, I would emphasize the following points:

1. A very large proportion of people are subject to some aural defect; disease of the middle ear furnishes from 65 to 70 per cent. of all aural diseases, and of all cases of deafness the middle ear is responsible for about 85 per cent.

2. Of all sources of involvement of the middle ear, about 90 per cent. are caused by involvement through the Eustachian tube.

29. Cobb: Med. Rec., New York, 1908, lxxiii, 818.
30. Jackson: Brit. Med. Jour., 1907, ii, 969.
31. Woakes: Quoted by Jackson, Brit. Med. Jour., 1907, ii, 969.
32. Grant: Laryngoscope, January, 1907.
33. Sendziak: Ann. Otol. Rhinol. and Laryngol., xvi, 814.
34. Wyss: Quoted by Sendziak.
35. Jurasz: Die Krankheiten der oberen Luftwege, 1891.
36. Leland: Laryngoscope, October, 1909.

3. Adenoids in children are complicated by ear diseases in at least 30 per cent. of the cases. This percentage will be much higher if careful objective aural examinations are made and any change in the appearance of the drum membrane noted.

4. The nasopharynx is directly responsible for a very great majority of all diseases of the middle ear, and any intranasal or sinus disease that is capable of causing a nasopharyngitis, or is attended by a purulent discharge, or so interferes with drainage of the nasal passages that accumulated secretions may gain entrance to the Eustachian tubes, is a constant menace to the middle ear.

5. Many cases of chronic catarrhal otitis media that apparently begin in adult life, are the result of some diseased condition of the nasopharynx existing during childhood.

6. The presence of hypertrophy of the pharyngeal tonsil increases greatly the liability of serious middle ear complications during an attack of the acute exanthematous diseases.

7. Any conditions that interfere with the normal physiologic action of the Eustachian tubes will predispose to middle-ear disease, and the means of obtaining and maintaining such normal function of the tubes is through a normal nasopharynx and an important factor in maintaining a normal nasopharynx is a normal nose and fauces.

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WHAT IMPROVEMENT CAN RATIONALLY BE EXPECTED FROM TREATMENT OF THE NOSE AND THROAT IN MIDDLE-EAR DEAFNESS?*

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The title of this paper suggests that diseases of the nose and throat may cause, or at least may perpetuate when once begun, diseases of the ear. I believe no qualified aurist to-day questions the statement that pathologic states of the upper air tract exert a continued evil influence on the ear; and since the amount of benefit to hearing which may be derived from treatment of the nose and throat will depend largely on how much harm to the ear a given nasal or throat affection may have, or is continuing to exert, on the aural function, it will be necessary at the outset to discuss briefly two points, namely: (1) the dependence of normal aural function on a perfectly normal state of the nose and nasopharynx; (2) the determination of the manner in which a diseased aural environment may affect the middle ear; for, with the physiologic and clinical facts relating to these points before us the answer to the question involved in the title to this paper may be sufficiently answered in a few brief paragraphs.

Otologists are familiar with the fact that, in order to functionate normally, the drum-cavity must at all times contain air at a pressure approximating that which surrounds the body as a whole, and that which presses on the external surface of the drum-head in particular; that the normal air of the middle ear must be replenished by the circulation of air through the Eustachian tube; that such circulation of air in the drum-cavity, to the end that there shall be an equality of pressure on both sides of the membrana tympani, is brought about, not inevitably or by chance, but by the action of a delicate, well-balanced system of muscles, including the palatoglossei, the palatopharyngei and the palatolevatori.

Granting that the renewal of air in the middle ear is necessary to a healthy function, and that the coordinate action of the above system of muscles is essential to bring about the necessary renewal of air in the drum-cavity, it becomes easy to understand that the presence of any pathologic condition in the nose or nasopharynx which by mechanical pressure in any way hinders the action of this group of muscles, or which, because of adjacent disease and infection, may in any way impair their function, will, in proportion to the degree of such injury, impair the function of the middle ear and thereby open the way to aural diseases of a congestive, exudate or infective nature. Any hypertrophy, deformity or new growth in the posterior portion of the nose or of the nasopharynx constitutes such an obstruction. Take, for instance, one of the commoner affections which block the nose or nasopharynx, such, for example, as an adenoid hypertrophy, cystic polypus or posterior nasal hypertrophy. How do these affect the middle ear? In three ways: 1. The normal function of the entire epipharynx is mechanically interfered with. Normal action of the tubo-palatal muscles is hindered to an extent that the Eustachian tubes are not sufficiently opened for ventilation. Since nasal respiration is impossible, mouth breathing is enforced, and one physical result is that the air in the nasopharynx, Eustachian tubes and middle ear is thereby constantly exhausted and rarefied. This rarefaction is made more complete by the act of swallowing, which, when performed by persons whose nose or nasopharynx is obstructed from any cause, forcibly sucks the air from the tubes and middle ear, thus impairing function and inviting middle-ear disease. 2. The venous return circulation from the middle-ear and Eustachian tube empties into the veins of the pharynx. Local pressure, therefore, of obstructive growths in or near the nasopharynx retards this circulation to an extent that congestion of the mucous lining of the tubes and drum-cavities takes place, with the inevitable result that exudates or transudates into the middle ear sooner or later occur. Such a venous congestion must be regarded as a potent predisposing cause of suppurative otitis media as well as of the several plastic affections commonly known as dry middle-ear catarrh. 3. The mechanical stimulus produced by the presence of any growth in the nasopharynx results in the secretion of large quantities of ropy mucus, which, because of the difficulty with which it is dislodged by the patient, becomes stagnant and infected. This is especially true in case the obstruction is an adenoid hypertrophy. An examination of many hundred specimens of adenoid hypertrophy that were removed *en masse*, by one sweep of the adenoid curette, shows that this growth consists of several lobes which are separated by fissures which often extend from the surface of the adenoid down to the underlying fascia. In large adenoid hypertrophies these fissures are sometimes an inch long and almost half as deep. These deep recesses produce and harbor much of the vitiated, infected mucus in question. The adenoid itself is the seat of inflammatory action as a result of almost every sudden change of temperature. An examination of the nasopharynx of the adenoid patient shows, in nearly every instance, the presence of the vitiated mucus which covers the hypertrophy, fills the crypts and often stretches from the adenoid to the lip of the Eustachian tube, to the upper surface of the palate, or to other neighboring structure. As already stated it is difficult, because of the obstructed nostrils and the thick consistency of the mucus, for the patient to dislodge this secretion, and, lying stagnant in the epipharynx as it must, it furnishes an excellent pabulum for the propagation and growth of pathogenic bacteria, which lie, as it were,

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at the very threshold of entrance to the middle ear, ever ready to invade this organ, whenever, as is usually the case in the presence of conditions here enumerated, a fertile soil has been prepared in the mucous membrane which lines the Eustachian tubes and middle ear.

Several otologists of note have stated that from 60 to 75 per cent. of cases of defective hearing, with or without aural discharge, can be fairly attributed to the presence of an adenoid, either now or at the time of onset of the aural affection. I quite agree with Bryant in his statement that the cause of tubal entrance of infections is nearly always some nasopharyngeal disturbance which interferes with the normal drainage function of the Eustachian tube, and that 95 per cent. of all middle-ear suppuration is due primarily to the tubal entrance of bacteria, and secondarily to abnormal conditions in the nasopharynx which interfere with the expulsion of bacteria.

It is rare, in my experience, to find a child with well-developed adenoid, untreated till the age of 10, in whom there is not found an easily discoverable loss of hearing. Both parent and patient may and often do stoutly assert that the hearing is perfect, and are in many instances honestly mistaken in this belief, inasmuch as they base their opinion on the fact that the child continues to hear spoken words without apparent difficulty. Ability to hear spoken words fairly well is, as we all know, not a sufficient evidence that the individual's hearing is unimpaired, for it is the common experience of all to find, on careful test by instruments of precision, that the function is often greatly impaired without the patient's having the slightest knowledge of the fact.

Although adenoid hypertrophy stands first as the initial cause of middle-ear deafness, the ill effects on the ear are not limited to early childhood, or to that period of the patient's life in which the adenoid is usually largest. While an adenoid may remain large to the fortieth year, as I have witnessed, it usually atrophies to a greater or less degree before the twentieth year. In its atrophic state, however, it continues to exert its damaging effect on the ear, for it continues, especially in bad weather, in a thickened and much-inflamed state, and, moreover, the fissures which originally separated the lobes, continue into old age, furnishing a perpetual source of mucoid, infected secretion. In most of these cases of long-standing adenoid on thorough inspection of the whole nasopharynx by means of the rhinoscopic mirror or pharyngoscope, it will be found that there is present a chronic nasopharyngeal inflammation. In many cases adhesive bands are seen, stretching between the posterior lip of the Eustachian tube and a near-by lobe of the adenoid. In some instances there exists an inflammatory adhesion between one or more lobes of the adenoid, and in nearly every instance gross evidence of a damaged and unhealthy epipharynx is present.

It has been pointed out by Reik and others that the faucial tonsils are a potent factor in the causation of middle-ear affections; that when hypertrophied and diseased they cause impaired ventilation of the tympanic cavity because of mechanical interference with the tubopalatal muscles; that they harbor infection in the tonsillar crypts and as a result of pressure-interference with the return venous circulation from the middle ear they cause passive congestion in the latter cavity. Both from a dissection of the parts involved, and from a study of the anatomic region, as shown in the drawings of the most eminent anatomists, I am unable to infer that the tonsils could, except when very greatly enlarged, interfere seriously with the normal action of the tubal muscles, or could by pressure greatly retard the venous circulation from the drum cavity; but when they are greatly hypertrophied both these evil results are, I think, clearly apparent. It is, however, true, without question, that the medium-sized, or even small, diseased and submerged faucial tonsil, is a constant menace to the middle ear because of the large amount of infectious substance it constantly retains in its crypts, and because of the acute and severe inflammatory states it so readily takes on, as in tonsillitis and quinsy.

Other new growths or hypertrophied structures, for example, such as nasopharyngeal fibroid, affect the function of the middle ear in the same manner as just described in cases of adenoid hypertrophy, the chief difference being that the adenoid, because of its deep and numerous fissures, furnishes a better field for the growth of pathogenic bacteria, whereas other hypertrophies are usually smoother and harder and do not, therefore, retain the infected, vitiated mucus so well. But no matter what the nature of the obstruction, the continued presence of any obstructive growth in the nasopharynx which interferes with the function of the upper air-tract, becomes a menace to the integrity of the ear. Indeed, clinical experience has amply demonstrated the fact that few patients escape serious damage to the ear provided the nose or nasopharynx remains obstructed for any considerable length of time.

With the above considerations of the intimate physiologic and pathologic relations of the nose and throat to the middle ear in mind, we may more intelligently proceed to answer the question, "What improvement can rationally be expected from treatment applied to the nose and throat in cases of middle-ear deafness?" The answer to the question has been so clearly anticipated by what I have already said in describing the absolute dependence of the health of the ear on a normal state of the nose and throat that it is now necessary to add but little more. I think that the reply can be best given by dividing all aural affections into three periods, and then stating the effect of throat and nasal treatment on the aural disease in each. Following this plan we have, (1) cases in that period of the child's life before any aural disease is actually present; (2) cases in the period when there is an easily discoverable aural ailment, but at a time before the aural structures are seriously or permanently damaged; (3) all cases that have reached the period of chronicity, in which marked and more or less permanent changes in the middle ear are easily discoverable.

In the first of the periods above mentioned the results of treatment of the nose and throat on the ear are entirely prophylactic, since no aural affection is present in the case, and, viewed in this light, may not fall strictly within the subject assigned me. The importance of such treatment at this time, however, furnishes ample justification for the brief paragraph I shall devote to it.

I have for some time entertained the belief that much of the deafness that exists to-day is entirely unnecessary, and that it could have been prevented if intelligent efforts had been made to do so at a time in the child's life before the actual aural affection began. It is the opinion of many otologists that disease of the middle ear seldom starts in the ear itself, but on the contrary has its beginning, almost without exception, in a diseased aural environment, and later extends to the ear from the latter place. Rational treatment of the affected aural environment at this early period, will, therefore, in the vast majority of cases, be the means of preventing subsequent middle-ear disease. By rational treatment I

mean the complete removal by surgical means, of all obstruction to normal nasal respiration, and to nasal and aural drainage, at the earliest possible time after it is known that such nasal or nasopharyngeal disease is present.

Patients belonging to the second period suffer only from acute or subacute aural ailments which have been originally set up by impaired nasal respiration plus faulty drainage of the nose and nasopharynx, and which are kept active by continued action of these causes. My experience in dealing with this class is, that good and satisfactory results are obtained in proportion to our ability to eradicate the diseased aural environment. Good drainage from the tympanic cavity is just as essential to successful treatment of middle-ear disease as it is to the satisfactory management of any other infected cavity, and hence this well-known principle of surgery should be followed here as elsewhere, to the extent of providing and maintaining a natural open-air channel between the deeply seated mucous cavity of the ear and the larger air-space of the nasopharynx to which it is accessory. In this period of the progress of the aural affection no plan of treatment yields results that can be favorably compared to those obtained from well directed surgery of the nose and throat. Even in the suppurative aural affections, when destruction of aural tissue has not been great, good results, both as to preservation of hearing and arrest of aural discharge, are usually obtained in greatest measure through medical and surgical means directed toward the nose and throat, for through such means only may we expect successfully to eradicate the bacteria breeding-places, to provide a nomal ventilation to the tympanum and to restore the function of the tubopalatal muscles, all of which improvements to the aural environment are entirely essential, as already shown, to the preservation of aural function.

While it is true that the degree of hearing which may be preserved by this plan of treatment during this period of the aural disease may fall far short of the normal, nevertheless, as already stated, not every one knows the normal, and hence the ordinary patient is well satisfied when he is able to hear common conversation distinctly and to discharge social and business duties without embarrassment.

In the final stages of the middle-ear disease, when tissue changes are palpable and of long standing, the benefits to the ear to be derived from the treatment of the nose and throat become less and less until ultimately no relief whatever may be expected. And yet in some such cases which are well advanced Emerson of Boston has stated that nasopharyngeal treatment is sometimes helpful. Emerson has especially pointed out the good results which may be obtained from breaking up any adhesions that may be found between the posterior lip of the pharyngeal Eustachian tube and a near-by lobe of an atrophied adenoid. He has also found in some cases that the fossa of Rosenmüller was filled with granular adenoid structure, the removal of which has resulted in the improvement of an existing tinnitus and marked benefit to hearing. Logan has obtained equally good results to hearing from the eradication of old, inflamed, adherent adenoid pads, after first breaking them up by means of the finger and then by the employment of the curette or other convenient method of complete removal. While I have secured encouraging results from the employment of the above and other means of nasal and nasopharyngeal treatment in a small percentage of cases, it is my belief that we should expect little in the way of comfort or improvement to hearing in the vast majority of cases. Indeed the ratio between the length of time the aural affection has existed and the amount of benefit that may be expected from treatment of the environment of the middle ear is very direct.

Briefly, it may be said that the earlier nasal and nasopharyngeal treatment is instituted the better the result, and *vice versa*. The statement may be positively made that, when nasal and nasopharyngeal disease is eradicated before the onset of an ear disease in the individual, disease of the ear will usually be prevented. When the child is permitted to "outgrow" the aural ailment, only partially successful results are possible at any time. When the aural affection is allowed to become chronic the value to the ear of nasopharyngeal treatment becomes progressively less effective in proportion to the degree of chronicity. Stated differently, nearly all middle-ear diseases are preventable by early treatment of the diseased environment; most are satisfactorily helped by such treatment in the early stages of the aural involvement; few are benefited by such treatment in the chronic period.

ABSTRACT OF DISCUSSION

DR. F. P. EMERSON, Boston: I think we are all agreed, as the various writers have stated, that the majority of these cases of otitis media originate in the nasopharynx, with the possible exception of those due to trauma, some cases of virulent external otitis, those due to accumulation of cerumen (cases which may themselves be due secondarily to the infection of the nasopharynx), cases due to fracture of the base of the skull, to labyrinthine invasion from meningitis and possibly a few cases of infection from the blood-current. We may expect improvement to the extent that we can localize and drain the focal infection. Treatment, in the nasopharynx, consists in the relief of the infection, which is communicated to the middle ear through the Eustachian tube. The middle-ear trouble is made progressive by constant reinfection. Any operation which does not take into account the involved sinuses, which may later reinfect the Eustachian tube, is of little moment from the otologic point of view. Many of these cases are of sinus origin. As the result of a hyperplastic ethmoiditis, which may be due to a deflected septum, obstruction of the frontal duct and an involvement of the frontal sinuses, which may in turn infect the ethmoid or sphenoid secondarily. Occasionally the sinuses may be involved from the start, with a virulent infection, but that is, in my experience, unusual. The point I wish to bring out is the importance of the Eustachian tube in keeping up, in these progressive cases of otitis, a constant infection, so that we do not get the improvement in the hearing after operation that we would otherwise expect. We are impressed, in using the instrument which I referred to yesterday, with the excursion of the Eustachian tube, which with normal deglutition opens and closes very widely. We find in a great many cases of unilateral deafness with tinnitus that there is granulation tissue in the fossa of Rosenmüller and it is constantly subjected to reinfection. We find also bands in the fossa. In many cases there is a congested area that extends into the tube. About five-eighths of the open end of the tube can be looked into during swallowing. We can determine the condition of the lining membrane of the tube and make out congestion, hypertrophy and atrophy. Sometimes we find lymphoid tissue in the tube. In advanced cases of otitis media, it does not make so much difference what is done in the nares, the patients will continue losing their hearing year by year. The greatest satisfaction follows treating the tube directly and relieving the infection. A great many of them, especially in chronic catarrhal salpingitis, have a narrowing of the tube, which is frequently quite marked at the isthmus. Sometimes there is a suppurative inflammation. Auscultation does not give any clue as to whether the tube is constricted. I have frequently inflated with air and then have been able to pass only a No. 2 sound, and could not pass Nos. 3 or 4, which showed narrowing.

Dr. Fred Stauffer, Salt Lake City: I would like to call attention to the condition of too greatly relaxed tympanic membranes from too much blowing of the nose. Dr. Heath of London has written an excellent paper on this subject. It is more important than we would think unless we look for that condition. From the frequent blowing of the nose, the Eustachian tubes are forcibly inflated and we have partial paralysis of the tensor tympani muscles and too much looseness of the ossicles and tympanic membrane, so that the sound wave does not produce acute hearing. In those cases we get better hearing on the street cars or railroad trains where the loud noises put these parts on tension. The treatment consists not only in the removal of the obstruction in the nose, which causes it originally, but also the toning up of the tympanic membrane with stimulants, as is outlined by Dr. Heath.

Dr. W. R. Murray, Minneapolis: I would only emphasize the fact that in middle-ear disease the amount of improvement to be obtained by treatment is inversely proportional to the extent to which the disease process has extended. In the exudative stage improvement may be expected from treatment. When advanced adhesive processes have taken place within the tympanum the results of treatment are very discouraging. Our treatment should be preventive.

Dr. J. F. Barnhill, Indianapolis: I only want to emphasize what Dr. Murray has said, that the one time to treat middle-ear trouble is before you get the disease—by preventing it.

REFRACTION CHANGES IN DIABETES*

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Since Horner first called attention to the subject and reported two cases to the Ophthalmologic Society of Zurich in 1873, a number of examples of sudden change in the refraction of glycosuric patients have appeared in the literature. The text-books have had little to say on the subject and what is to be found in the standard works is misleading.

The object of this paper is to call attention once more to the fact that the refraction not only may be increased in diabetes, but that it may be diminished; that both changes may occur in the same patient; and that the changes bear no necessary relation to the amount of sugar in the urine. As is well known, diabetes sometimes causes a true paralysis of accommodation, and in a number of cases of refraction change due to this disease there has been either a limited range, or a more or less definite paralysis. One author, at least, it seems to us, has confused a case of increased hyperopia with paralysis of accommodation. This case will be referred to later. Cases of increase in the refraction of the eye (increased myopia or diminished hyperopia) in glycosuria have been reported by Grimsdale, Appenzeller, Hirschberg, de Schweinitz, Neuberger, Groenouw, and others; but with these we have no present concern. The following cases from the literature, it seems to us, offer trustworthy evidence of diminished refraction due to diabetes:

Horner's[1] Case.—The patient was a woman, aged 55, who since August, 1870, had suffered with diabetes mellitus, passing an enormous quantity of urine, heavily loaded with sugar. She had been wearing no glasses, except for near work at night, when she used R. E. +0.75 Sph. L. E. +1.50 Sph. By the end of October her sight was failing and her glasses no longer were suitable. On November 19, she accepted, both eyes, +2.75 Sph. R. V. =5/5, L. V. =6/5; +1.50 Sph. was added for near. There was no intra-ocular lesion. As the diabetes improved the convex lenses no longer suited. Jan. 13, 1871, she accepted, both eyes, +0.75 Sph. Vision was the same as above noted, and the correction for presbyopia also the same (+1.50).

Risley's[2] Case 1.—The patient was a woman, aged 49, who had improved under treatment, and developed dimness of vision only after her symptoms of diabetes were largely relieved. Her old lenses (+2.75 Sph.) no longer served, and her vision was reduced to 1/5 in the right eye, and 1/4 of normal in the left eye; and there was no range of accommodation. With mydriatic, the following refraction was revealed:

R. E. +5.00 Sph. +1.25 Cyl. Ax. 75°, V. =6/6, L. E. +6.00 Sph. +0.75 Cyl. Ax. 105°, V. =6/6.

Ten days later her vision was again dim with glasses, and she accepted:

R. E. +3.00 Sph. +1.25 Cyl. Ax. 75°, V. =6/6, L. E. +3.50 Sph. +0.75 Cyl. Ax. 105°, V. =6/6, and accommodation was still absent.

Fifteen days later she accepted:

R. E. +1.25 Sph. +1.25 Cyl. Ax. 75°, V. =6/6, L. E. +1.50 Sph. +0.75 Cyl. Ax. 105°, V. =6/6.

Through several months of careful observation no further change was noted, though the patient steadily grew worse, with persistent glycosuria.

Risley's[2] Case 2.—The patient, a man of 74, had suffered with diabetes for at least six years, when he complained of dimness of vision. His refraction proved to be:

R. E. +1.50 Sph. +1.25 Cyl. Ax. 180°, V. =6/7.5, L. E. +1.25 Sph. +1.25 Cyl. Ax. 180°, V. =6/10.

From this time (August, 1896) until April, 1897, there was no change in the eyes. April 23, he complained of dimness of vision for distance and inability to read even large type with his reading lenses. His diabetes at this time was improved. He now accepted:

R. E. +2.50 Sph. +1.25 Cyl. Ax. 180°, V. =6/7.5, L. E. +2.50 Sph. +1.25 Cyl. Ax. 180°, V. =6/10.

May 20, he returned complaining that his vision was blurred with the distance lenses after a few days' use, and that he must hold his book too close in reading. He accepted his old glasses and had vision: R. E. 6/7.5?, L. E. 6/10.

Carpenter's[3] Case.—The patient, a woman aged 51, had consulted Carpenter six years before on account of presbyopia. She now complained of sudden inability to see clearly at a distance or to read with her near glasses. Her refraction, which had been a slight myopic astigmatism, was now hyperopic: R. E. +1.50 Sph. V. = 6/6, L. E. +2.50 Sph. V. =6/6. With +2.25 Sph. added she read Jaeger 1 at 30 cm. The urine had contained a large amount of sugar four weeks previously; and a reduction in the amount of sugar, under strict dieting, was coincident with the failing vision. There was no lesion of media or fundi. In three weeks, vision again blurred with glasses and she showed a myopia of 0.50 D.

Gallus'[4] Case.—The patient was a man of 51, who had had symptoms of diabetes for some time but had been under treatment only two weeks. He had been seeing well at a distance and wearing +2.00 spheres for reading. Recently his distant vision had failed and he saw better for distance with his reading lenses which no longer served their former purpose. His refraction, on March 28, 1905, was found to be:

R. E. +1.50 Sph. +0.50 Cyl. Ax. 180°, V. =5/8, L. E. +2.00 Sph. +0.50 Cyl. Ax. 180°, V. =5/5. +2.00 Sph. added enabled him to read the finest print. The eyes were in every way normal except for a slight pallor of the temporal halves of the disks and slight narrowing of the form fields with overlapping of red and green. May 23, the sugar was absent, and the patient was using his old correction (+2.00 Sph.) for reading. Refraction now was:

R. E. +0.50 Sph. +0.50 Cyl. Ax. 180°, V. =5/7, L. E. +0.50 Cyl. Ax. 180°, V. =5/5. With +2.00 Sph. added for near he was able to read the finest print. The fields were now noted as being wider but not normal.

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

1. Horner: Klin. Monatsbl. f. Augenh., 1873, xi, 433.
2. Risley: Tr. Am. Ophth. Soc., 1897, p. 121.
3. Carpenter: Abstracted in Ophth. Rec., June, 1902.
4. Gallus: Ztschr. f. Augenh., 1906, xv, 319.

LICHTENSTEIN'S[5] CASE.—This is of especial interest, inasmuch as it exhibits diabetes in a youth of 17 years, with complete paralysis of accommodation and an increase in hyperopia, proved by repeated examinations under cycloplegia. This patient showed, on March 8, 1906, a slight anisocoria, and reduced vision. His eyes were otherwise normal. His manifest refraction was +1.50 Sph., both eyes, V. =6/6. This agreed with retinoscopy. A +12.00 Sph., both eyes, was required to read Jaeger 1 at 9 cm. The diagnosis of complete double-sided paralysis of accommodation was made, for which no cause could be discovered by the ophthalmologist or neurologist, except diabetes, which was established by the internist. There was 4.5 per cent. of sugar in the urine, of which six liters were passed daily. The diabetes increased in spite of treatment. On the following day the manifest refraction was +2.50 Sph., and +13.00 Sph. was required for near. Homatropin was then used, with the same finding; namely, +2.50 Sph. Two days later, under atropin cycloplegia, hyperopia =3.50. There was no change in the next two weeks, during which time the sugar was reduced and the patient gained in weight. In another week the refraction was still +3.50 Sph., and now a +11.00 Sph. was sufficient, instead of +13.00, to bring the near point to 9 cm. Thereafter a steady strengthening of the accommodation was manifested by the progressively smaller convex lenses required, until two months later, when a +5.00 Sph. sufficed. During this time the hyperopia was found to be 3.00, 2.50, 2.00, and finally 1.50, the latter estimate being with atropin cycloplegia. The thoroughness of the use of cycloplegia in this case is attested by the patient's refusing to return for further examination on account of his fear of atropin.

LANDOLT'S[6] CASE.—No mention is made of the use of a cycloplegic, and the amount of hyperopia developed is too small to be conclusive. The patient was a woman, the subject of a traumatic diabetes, who had arrived at an age when the accommodation is almost *nil*, and in whom the refraction was made repeatedly with great care, according to the authors' statement. A hyperopia of 0.50 developed, and the refraction showed variations in direct proportion to the amount of sugar in the urine, finally returning to emmetropia.

DOYNE'S CASE.—Unfortunately we do not know the refraction of Doyne's[7] patient, a physician aged 40, previous to his acute diabetes; but the subsequent history points strongly to an increase of hyperopia, later approximating emmetropia with the cure of the diabetes. Early in the course of the disease, when vision had become very dim, hyperopia was 3.00 D. With improvement in the patient's general condition the error gradually lessened until, when the urine was entirely free from sugar, the refraction was +0.75 Sph. with homatropin cycloplegia.

JACKSON'S[8] CASE.—A woman, aged 52, came with a history of diabetes of some years' standing. Recently the amount of sugar had greatly increased and the general condition was worse. Until a few weeks before, the patient's distant vision had been good. At the time of her visit vision was 4/60. With R. and L. +2.25 Sph., vision was 4/4. These lenses were prescribed for distance, and +2.00 added for near. Three months later she returned complaining that she could not see with the distance glasses and the reading lenses were unsatisfactory. Vision without lenses was now 4/4, and the same with +0.50 Sph. She was given +2.75 Sph. for near work and there was no change six weeks later, but she grew rapidly worse and soon died.

LUNDSGAARD'S[9] CASE 1.—The patient was a woman of 57, who was given +0.50 Sph., both eyes, V. =6/6, in March, 1902. No lesion was found in her eyes at this time. In July, 1905, she developed abnormal thirst and hunger and passed three to four liters of urine daily. Numerous examinations of the urine during 1905 revealed no sugar. A trace was present in February, 1906. In August, 1906, there was 7.75 per cent. of sugar. With restricted diet the percentage fell to 2.25 per cent. in ten days. August 24, the patient noted a dimness of vision which remained unchanged for eight days. Examination revealed R. E. +2.50 Sph. V. =6/6; L. E. +2.00 Sph. V. =6/6. No lesion of either eye. Accommodation was recorded as corresponding to the patient's age. The sugar diminished in quantity during September, and on September 15 the refraction was: R. E. +2.00 Sph., L. E. +1.50 Sph. By October 14 sugar was absent, and on November 19 the cloudy vision had disappeared. She read with her old reading lenses, and the refraction was the same as in 1902 (hyperopia =0.50), with normal vision.

LUNDSGAARD'S[10] CASE 2.—The patient was a woman aged 50. She had had diabetes for half a year. July 8, 1907, she suddenly found that her glasses (+1.50 Sph.) caused blurring. Her refraction was now found to be R. E. +3.00 Sph. V. =6/6, L. E. +3.50 Sph. V. =6/6. Accommodation was normal and ophthalmoscopic findings normal. Tension normal. Two days later the dimness of vision vanished and she saw with her old glasses. On July 15, the refraction was recorded as emmetropic. V. =6/6. The sugar, which was 6.2 per cent. on June 26, fell to 2.5 per cent. on June 29, 1.7 per cent. on July 2, 0.3 per cent. on July 5, 0.2 per cent. on July 8; thus we note a sudden increase in hyperopia occurring some days after the sugar had fallen from a high percentage to a mere trace. The accommodation remained normal throughout. The author states that he had no opportunity to use atropin.

LUNDSGAARD'S[11] CASE 3.—This is unique in the thoroughness with which it has been studied and reported. A woman, aged 50, stated that her vision had been good until presbyopic symptoms appeared one year previously. She had been given a glass for near work which was later increased to +1.50 Sph. For a half year she had suffered with diabetes, and the sugar had increased from 2.5 per cent. to 6 per cent. At the time of her first visit (Nov. 5, 1909) she was disturbed by blurring of distant vision and inability to use her reading lenses. She had headache and saw objects distorted, curved and angular, with the left eye. Refraction showed R. E. +1.50 Sph. V. =6/6, L. E. +2.00 Sph. V. =6/12. With +3.50 Sph. both eyes, she could read Jaeger 1. With the left eye the letters were out of line, some higher, some lower. The Schiötz tonometer revealed normal tension and the Javal ophthalmometer showed corneal astigmatism. The right pupil was slightly smaller than the left. Both reacted normally. The media were clear except for a mass of grayish, punctate flecks, partly vacuoles, in the right eye. They appeared to be in the front part of the lens, distinctly seen with the corneal loupe. The left eye showed no such appearance when the pupil was widely dilated with homatropin.

November 15, R. E. +2.50 Sph. V. =6/6—; L. E. +2.50 Sph. V. =6/12.

November 18, sugar 0.85 per cent.

November 22, no change; atropin, left eye.

November 30, R. E. +1.00 to +1.50 Sph. V. =6/6—; L. E. +2.00 Sph. V. =6/12.

November 15, R. E. +2.50 Sph. V. =6/6—; L. E. +2.50 Sph. V. =6/12—.

December 30, refraction and vision were unchanged. Flecks and vacuoles unchanged. Sugar 2.3 per cent.

January 16, 1910, no change in refraction or vision. Atropin was used each time in the left eye in order to study the lens changes with a dilated pupil. The opacities seemed less numerous than formerly and very superficial and mostly in the periphery.

February 1, the right eye was reported emmetropic with vision 6/9; the left eye (manifest and under atropin) +0.50 Sph. V. =6/12. The distortion of objects in the left eye was unchanged, though the usual tests with straight lines for metamorphopsia showed no abnormality. During these numerous examinations, the ophthalmometer and tonometer readings showed at no time any change in tension or corneal astigmatism. The patient said that she saw as well as before the development of her diabetes, though the lens opacities remained unchanged.

KNAPP'S[11] CASE 1.—The patient was a woman of 47, who was found to be emmetropic by skiascopy, and accepted no

5. Lichtenstein: Ztschr. f. Augenh., 1906, xvi, 330.
6. Landolt and De Wecker: Traité complet d'ophthalmologie, III, 388.
7. Groenouw: Augenleiden bei Diabetes Mellitus, 1907, p. 46.
8. Jackson: Tr. Acad. Ophth. and Oto-Laryngol., 1905, p. 221.
9. Lundsgaard: Ztschr. f. Augenh., 1907, xvii, 156.
10. Lundsgaard: Klin. Monatsbl. f. Augenh., 1910, xlviii, 38.
11. Knapp: Ztschr. f. Augenh., 1900, xxi, 420

lens for distance, in December, 1907. She was given +1.25 Sph. for her presbyopia. Oct. 26, 1908, she reported that she had suffered with diabetes since the first of the year, and for several days her vision had been poor for distant and near objects. Her vision was 6/36. Skiascopy showed hyperopia of 2.00 D., and +2.00 Sph. gave 6/9 vision. With +4.00 Sph. she read finest type at 30 cm. Ophthalmoscopy revealed red disks, but no lesion. November 9, there was no sugar in the urine and she accepted: R. E. +1.00 Sph. V. =6/6; L. E. +0.50 Sph. V. =6/6; agreeing with skiascopy.

November 23, R. E. +0.50 Sph.; L. E. +0.25 Sph. No sugar.

February 13, 1909, R. E. +0.50 Sph. V. =6/6; L. E. emmetropia, V. 6/6. R. E. +1.00 Sph. gives Jaeger 1 at 25 cm. L. E. +1.00 Sph. gives Jaeger 1 at 22 cm. The refraction was the same at this time with homatropin cycloplegia.

KNAPP'S[12] CASE 2.—The patient was a man of 48, who had a severe diabetes of only a few weeks' duration when, in April, 1908, he complained of dimness of vision, coming on over night, for both far and near. Skiascopy revealed a hyperopia of 1 D., and +1.25 Sph. brought vision up from 1/3 to normal. To read Jaeger 1 at 20 cm., +5.00 Sph. was required, showing a weakened accommodation. Four weeks later the sugar had disappeared and the patient's sight was good without lenses. Skiascopy revealed emmetropia and V. =6/6 without lenses. Accommodation, 2 to 2.50 D. In March, 1909, emmetropia, both eyes, and V. =6/6. With +1.00 Sph. the patient read Jaeger 1 at 35 cm. He continued well and worked as a chemist without glasses. Neither of Knapp's cases had any abnormality of tension or demonstrable lesion in the eye.

ZENTMAYER'S[12] CASE.—The patient was a woman, aged 58, who had been under treatment for glycosuria for three weeks when she consulted the ophthalmologist, Oct. 4, 1909, complaining of rapid loss of vision for the past ten days. She had worn glasses only for near work during the preceding six years, but now could see better with these lenses for distance than without them. Vision was R. E.=6/60, L. E.=6/60; fields practically normal. Tension of left eye +?. There was marked arteriosclerosis of the retinal vessels. Otherwise the eyes were normal. Refraction was found to be:

R. E. +2.50 Sph. +0.25 Cyl. Ax. 165°, V. =5/5, L. E. +2.50 Sph. +0.50 Cyl. Ax. 15°, V. =5/5; +2.50 Sph. added, both eyes, enabled her to read type 0.37 at 25 cm. October 26, there was no change noted in the hyperopia or vision. November 9, R. E. +1.25 Sph. V. =6/5 pt.; L. E. +1.25 Sph. V. =6/5 pt. Accommodation unchanged.

Jan. 17, 1910, R. E. +0.50 Sph. V. =6/6 pt.; L. E. +0.75 Sph. V. =6/6 pt. Accommodation unchanged. Dr. Zentmayer states that the sugar, which had been as high as 5 per cent., was lessening at the time when vision failed, and had been absent for two days previous to her first visit to him (October 4).

ROBERTS'[13] CASE.—Roberts reported the following case under the title of "Transient Cycloplegia Due to Glycosuria": A man, aged 51, the subject of diabetes, complained of inability to read with his old reading lenses and inability to see distant objects distinctly without lenses. Heretofore he had seen distinctly, without lenses for distance, and with +1.75 Sph., both eyes, for near. The sugar in the urine was now 3/8 per cent., whereas two weeks before it had been 7 per cent. R. E. V. =6/22.5; L. E. V. =6/15. Manifest refraction was: R. E. +1.75 Sph. V. =6/5; L. E. +1.75 Sph. V. =6/5. The addition of +2.25 Sph., both eyes, was necessary to bring the near point to 13 inches. No lesion was discovered in either eye. One month later his general health was improved. His last glasses had been satisfactory until within a few days; but now they blurred his distant vision, and required that he hold his book too close to the eyes. Vision, with correction, was 6/12. Manifest refraction showed: R. E. +1.00 Sph. V. = 6/5; L. E. +0.75 Sph. V. =6/5; with +2.25 Sph. added for near. Nine months later he reported that his eyes had gradually returned to their previous condition and he used his original lenses for reading (+1.75). It would seem to us that this is really a case of increase of hyperopia in the course of diabetes, with a very small amount of paresis of accommodation; for the patient required +1.75 Sph. for presbyopia before his diabetes, and only +2.25 Sph. added to his distance correction when first seen by Dr. Roberts; and when seen later his presbyopia remained the same, while his hyperopia had diminished 0.75 D. in the right eye and 1.00 D. in the left; later still both the hyperopia and the slight paresis of accommodation disappeared practically, allowing the use of the original reading lenses only (+1.75).

GOULD'S[14] CASE.—In April, 1907, Dr. George M. Gould reported a case of rapidly changing refraction in the person of a physician suffering from glycosuria, and reviewed the literature. His patient was a man, 58 years of age, whose eyes he had repeatedly examined under cycloplegia. In December, 1902, he had been wearing:

R. E. —2.62 Sph. —0.75 Cyl. Ax. 35°, V. =20/20+; L. E. —2.62 Sph. —1.25 Cyl. Ax. 167°, V. =20/20+, with +1.75 added for near in bifocals. On the eighteenth of that month the patient complained of eye-strain and blurred distant vision and accepted the following:

R. E. —3.25 Sph. —0.75 Cyl. Ax. 25°, V. =20/20+; L. E. —3.25 Sph. —1.50 Cyl. Ax. 166°, V. =20/20+, with +2.12 added for near in bifocals. There was also a limitation of the range of accommodation. Other symptoms suggested examination of the urine, which was found loaded with sugar. A strict diet was prescribed, and in a week the sugar had disappeared from the urine, but the eye-strain had returned. A reexamination showed that the error of refraction had returned almost exactly to the point of seven days before. In the next four years the patient was less careful of his diet, and in December, 1906, accepted the following:

R. E. —2.87 Sph. —0.37 Cyl. Ax. 25°, V. =20/20+; L. E. —3.00 Sph. —1.50 Cyl. Ax. 172°, V. =20/20+, with +2.50 added for near in bifocals. In February, 1907, there was increasing evidence of ill health, a high percentage of sugar in the urine, and symptoms of eye-strain. The rigid diet was resumed and in a few days the glycosuria had disappeared, but the eye-strain was worse than ever. Examination showed the following error:

R. E. —2.00 Sph. —0.62 Cyl. Ax. 20°, V. =20/20+; L. E. —1.87 Sph. —1.37 Cyl. Ax. 170°, V. =20/20+, with +2.00 added for near.

Dr. Gould writes us that the patient continues in good health and is now wearing:

R. E. —2.50 Sph. —0.87 Cyl. Ax. 35°, V. =20/20+; L. E. —2.50 Sph. —1.50 Cyl. Ax. 170°, V. =20/20+, with +2.37 added for near.

Attention is called to the fact that, ignoring the astigmatism, the myopia increased from —2.62 to —3.25 and then, after a period of careful dieting, fell to —2.00 in one eye, and —1.87 in the other, five-eighths of a diopter in one eye and three-quarters in the other, below what may be termed the normal myopia for the individual—the amount present before the glycosuric changes began. This, we believe, is not to be explained on the ground of careless refraction or lack of cycloplegia.

Dr. Gould very properly calls attention to the fact that no case of this sort can adequately be studied without cycloplegia if the patient still retains any accommodation, and that the previous static refraction should be known. He also says that there is no reported case of myopia (with sudden change in diabetes) in which glycosuria has not had the effect of increasing the myopia. He believes it illogical, if not impossible, that the same cause can also bring about an increase of hyperopia, and questions the accuracy of the observation of those who have reported such cases. It seems to us that Dr. Gould's own case disproves his contention. As we have already pointed out, after increasing and then falling back to normal, and increasing again, his patient's myopia diminished five-eighths and three-quarters of a diopter below the starting point. The following cases

12. Zentmayer: Abstracted in Ophth. Rec., February, 1911.
13. Roberts: Arch. Ophth., 1909, xxxviii, No. 4.
14. Gould: New York Med. Rec., April 20, 1907.

from our practice, however, show that the refraction may increase and diminish in the same patient in glycosuria:

WESCOTT'S CASE.—Miss K. H., stenographer, aged 36, was referred to one of us (C. D. W.), because of headache, in February, 1896. Under complete cycloplegia with homatropin and cocain she accepted:

R. E. +0.75 Sph. V. =6/6; L. E. +0.75 Sph. V. =6/6. She was given the full correction for near work only, with relief from her headaches. In May, 1898, she was complaining again and under homatropin and cocain accepted:

R. E. +0.87 Sph. V. =6/6; L. E. +0.62 Sph. V. =6/6. She was given the above, less 0.25 Sph., for constant use, and was again relieved of her symptoms. In May, 1903, she suffered again from headache and was again examined under homatropin and cocain, accepting:

R. E. +1.00 Sph. +0.25 Cyl. Ax. 180°, V. =6/6+; L. E. +1.25 Sph. +0.25 Cyl. Ax. 180°, V. =6/6+. She was given the above, less 0.37 Sph., and was comfortable once more. In July, 1906, she was again complaining, and under the same cycloplegia accepted:

R. E. +1.25 Sph. +0.25 Cyl. Ax. 180°, V. =6/6; L. E. +1.00 Sph. +0.25 Cyl. Ax. 180°, V. =6/6. Given the above, less 0.25, for distance and added +0.50 for near in bifocals. In September, 1907, when the patient was 47 years of age, she returned, saying that she could not see well with her distance glasses. The external eye, reflexes, and fundus were normal. Under homatropin and cocain she now accepted:

R. E. —0.25 Sph. +0.50 Cyl. Ax. 15°, V. =6/6—; L. E. —0.25 Sph. +0.50 Cyl. Ax. 165°, V. =6/6—. A few days later without cycloplegia she accepted:

R. E. —0.50 Cyl. Ax. 165°, V. =6/6—; L. E. —0.50 Cyl. Ax. 75°, V. =6/6—. This was prescribed, with +0.75 Sph. added in bifocals. There was no paralysis of accommodation. Diabetes was suspected and the patient was advised to consult her physician for general examination and treatment. November 2, 1907, she returned, complaining that she could no longer see to read with the glasses prescribed in September, and her bifocal segments were increased to +1.50 Sph. At this time her physician, Dr. Annie Sage, repo d 5 per cent. of sugar in the urine. November 12, sugar 8.266 per cent. Acetone absent. March 19, 1907, the patient returned, complaining that she could not see well, far or near, with or without glasses. Examination showed that distant vision was reduced to 6/45, with either eye, with her correction, and near vision to Snellen 2 D. at 14 inches. With +3.00 Sph. added, distant vision was restored to 6/6—, and near vision to Snellen 0.50 D. at 8 to 18 inches. She was given +3.00 Sph. in a grab front to be worn over her bifocals. Sugar 4.533 per cent. Diacetic acid and acetone absent.

November 25, sugar 6 per cent.

December 2, sugar 4.266 per cent.

December 12, 1907, the patient returned her grab front, as the vision had improved so much that she was able to get along with her correction. Distant vision at this time was 6/12 with either eye. There was 5.866 per cent. of sugar in the urine on March 28, 1908; she saw better without her glasses than with them, and was again examined under homatropin and cocain, with the following result:

R. E. +1.00 Sph. +0.37 Cyl. Ax. 180°, V. =6/6; L. E. +1.00 Sph. +0.37 Cyl. Ax. 5°, V. =6/6. The patient was given the above, less 0.25 Sph., for distance, with +1.25 Sph. added in bifocals. At this time when the refraction had increased to and beyond what was normal for her when the rapid change began, the urine contained 6.66 per cent. of sugar. After this examination, however, her health failed rapidly, the amount of sugar increased to 15 per cent., and she died in coma, without being seen by us again. This case also shows that hyperopia may decrease, increase, and decrease again, while the amount of sugar more or less steadily increases.

ELLIS' CASE 1.—Catherine M., domestic, aged 40, seen in December, 1907, for some time had noticed that vision was variable, and three weeks previously Dr. N. S. Davis of Chicago had diagnosed diabetes. Vision: R. E. 6/30; L. E. 6/15. Under cycloplegia with homatropin and cocain she accepted the following:

R. E. +4.50 Sph. V. =6/6+; L. E. +4.50 Sph. V. =6/6+. A few days later, without cycloplegia, she accepted:

R. E. +4.00 Sph. V. =6/6+; L. E. +3.75 Sph. V. =6/6+, and this was ordered for constant use. At this time the urine contained 3 per cent. of sugar.

In March, 1908, the patient returned, complaining that she could no longer see well with the glasses and had discarded them. Reexamination under homatropin and cocain gave the following result:

R. E. +2.25 Sph. +0.25 Cyl. Ax. 10°, V. =6/6; L. E. +1.37 Sph. +0.37 Cyl. Ax. 30°, V. =6/6. Given the above, less +0.50 Sph. The patient was then passing four quarts of urine containing 2.5 per cent. of sugar.

ELLIS' CASE 2.—Mrs. J. T. W., aged 48, was referred by Dr. Julius Hoelscher of Chicago in September, 1910. The patient complained that her eyes had so changed in the past few weeks that she could see clearly in the distance with glasses used for some time for reading, and that they were no longer satisfactory for near work. Dr. Hoelscher reported polydipsia and polyuria and 4.5 per cent. of sugar in the urine. No diacetic acid or acetone was present. The patient had been examined by him one year before, and six months before, and no diabetes was found. The external eye, the reflexes, and the fundus were normal. R. V. =6/45, L. V. =6/45. With old reading glasses:

R. E. +2.50 Sph. +0.75 Cyl. Ax. 45°, V. =6/5; L. E. +3.00 Sph. V. =6/5. Under homatropin and cocain the patient accepted:

R. E. +2.75 Sph. +0.50 Cyl. Ax. 60°, V. =6/5; L. E. +2.75 Sph. V. =6/5. After passage of mydriatic a few days later she accepted:

R. E. +2.50 Sph. V. =6/5; L. E. +2.50 Sph. V. =6/5. The above was ordered, with +1.50 Sph. added for near. There was no paralysis of accommodation. In December, 1910, the patient came complaining of poor distant vision with glasses, and stated that vision was much better without them. Examination showed vision 6/9 in either eye without glasses, and 6/30 with correction. Without mydriatic she accepted:

R. E. +0.75 Sph. +0.50 Cyl. Ax. 45°, V. =6/5—; L. E. +0.75 Sph. V. =6/5, which was given, with +1.50 added for near. At this time the urine was free from sugar. February 14, 1911, this patient was again examined under homatropin and cocain. The fundus was normal and she accepted:

R. E. +1.00 Sph. +0.37 Cyl. Ax. 45°, V. =6/6+3; L. E. +1.25 Sph. +0.25 Cyl. Ax. 165°, V. =6/6+4. A few days later without mydriatic she accepted the above, less 0.25, and +1.50 added for near. No paralysis of accommodation. This case, like our first one, shows an increase of hyperopia, though we do not know how much, followed by a very marked decrease.

ELLIS' CASE 3.—A woman, aged 65, was seen July 12, 1910, Her distant vision had been failing rapidly for three months, with dull headache on near work. The ophthalmoscope showed sclerosis of the lenses and pronounced retinal arteriosclerosis. R. V. =6/22—1, L. V. =6/22—1. She was wearing +2.75 Sph., both eyes, for near, and read Snellen 0.50 at 9 inches. Under homatropin and cocain she accepted:

R. E. —0.75 Sph. —1.00 Cyl. Ax. 15°, V. =6/9; L. E. —0.75 Sph. —0.50 Cyl. Ax. 135°, V. =6/12. She was given the above, with +2.50 added for near. On August 16, 1910, she saw better without glasses. R. E. V. =6/22; L. E. V. =6/22; with glasses V. R. E. =6/45; L. E. =3/45. Under homatropin and cocain she accepted:

R. E. +1.75 Sph. +0.25 Cyl. Ax. 120°, V. =6/9+; L. E. +1.75 Sph. +0.25 Cyl. Ax. 180°, V. =6/9. March 17, 1911, she again saw better without distance glasses than with them. She admitted carelessness in diet.

R. V. =6/12+, with correction =6/30; L. V. =6/12+, with correction =6/30. Under homatropin and cocain she accepted:

R. E. +0.75 Cyl. Ax. 130°, V. =6/9+2; L. E. +0.50 Cyl. Ax. 15°, V. =6/9—2.

A review of the above cases shows that a much more extended and accurate study is necessary for a solution of the problem involved. As has been pointed out, the

static refraction of the patient in health should be known, and careful examinations are desirable as often, at least, as the patient is able to recognize changes in his vision. It goes without saying that all examinations should be made under cycloplegia when any accommodation remains which could interfere with accuracy. Frequent and regular examinations of the urine should be made for sugar and other substances which may affect the refraction or the accommodation. The fact that there is no definite relation between the amount of sugar in the urine and the refraction changes is very suggestive, as is also the fact that partial or complete paralysis of accommodation may or may not be present in cases showing an equal amount of sugar in the urine. The fact that the most startling changes in the vision and refraction have occurred when the general condition was improving and the urine free from sugar, points to the possibility of another agent as the offending factor in at least a portion of the cases. We regret exceedingly not being able to make more extended studies in our own cases; but two of our patients were working women who could give us little time, and who gave the internist even less opportunity for the study of their metabolism.

Numerous theories have been proposed in explanation of refraction changes in the course of diabetes, generally assuming that the presence of sugar in the lymphatic circulation of the eye produces alteration in the refractive indices of the media, cornea, aqueous, lens, and vitreous; or else that the volume of the globe is altered through the loss of fluid in diabetes. For example, Landolt[6] explained his case of diminished refraction on the theory of augmentation of the index of refraction of the vitreous body, since the vitreous presents a concave surface to incident rays. He thought that changes in the volume of the globe could not occur rapidly enough to account for the changes in refraction observed in his patient. On the contrary, Horner[1] believed that sudden loss of fluid from the eye was responsible for developing hyperopia. Schmidt-Rimpler,[15] not referring to diabetic cases especially, said that loss of fluid, with minus tension, does not alter the refraction of an eye. In perhaps the most thoroughly studied of all the cases found in the literature, Lundsgaard's third case,[16] repeated examinations with the ophthalmometer and the Schiötz tonometer revealed no alterations in corneal curvature or tension of the eyes during the period of varying refraction.

An increase of refraction in the course of cataract development is a very frequent phenomenon. On the contrary, Machek[16] detailed three cases of diminished refraction in the course of the development of subcapsular cataract with central transparency of the lens; and Priestley Smith[17] speaks of hyperopia developing in incipient cataract. In diabetic cataracts, the lens has been found, on chemical examination, to contain sugar (Liebreich, Leber); Nagel, on the contrary, did not find sugar in the lens. Lichtenstein[5] thought that change in the index of refraction of the lens was the explanation of his case, as did Knapp,[11] who compared the diabetic toxin with nicotin and strychnin in the rapidity of its action.

Against the idea of alteration in the refractive index of the aqueous caused by the presence of sugar in this fluid, is the experiment of Hess[18] showing that 20 per cent. of grape-sugar is necessary to produce a myopia of 1 D., while Deutschmann[18] noted cloudiness and swelling of a lens after immersing it in a 5 per cent. sugar solution for a few hours. Obviously these two experiments are inconsistent with the idea that a considerable change in refraction, without cataract formation, is due to the presence of sugar in the fluid bathing the lens.

It seems to us that none of these theories will do. The problem is an interesting one, however, and no doubt will some day be solved. It offers opportunity for the internist, the physicist, and the physiologic chemist, as well as the ophthalmologist.

In conclusion, we wish to express our indebtedness to Dr. Emory Hill for his painstaking care in abstracting the published cases, and for other assistance in the preparation of this paper.

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15. Schmidt-Rimpler: Graefe-Saemisch Handbuch der gesamten Augenheilkunde 6, vii.
16. Ztschr. f. Augenh., xix, 330.
17. Smith, Priestley: Graefe-Saemisch Handbuch des gesamten Augenheilkunde, 11, vi.
18. Hess: Quoted by Parsons: The Pathology of the Eye, III, 929.

ABSTRACT OF DISCUSSION

DR. WILLIAM ZENTMAYER, Philadelphia: Dr. Wescott's analysis of cases is particularly interesting, especially those that have a decrease in the static refraction. The cause is difficult to explain. There are other known ocular changes in diabetes which may throw light on the cause of the decrease in refraction in this affection. We know that we have paralysis of accommodation, cataract and myopia as the result of diabetes. Now as to the accommodation theory, Dr. Roberts' case certainly indicates that a paresis of accommodation may be the cause of the decrease in the static refraction, but there are many cases on record in which the static refraction was known before the change took place, particularly in Risley's, Carpenter's and Lundsgaard's cases, and it was again estimated under atropin, and after the atropin had passed off and it was shown that it was due to actual change in the static refraction. In my own case I did not know what the static refraction was before, but during the time there was no change in the accommodation. Recently the patient has had a second attack and again there was no paresis of accommodation. Paralyses of accommodation in other affections are not so fugacious; they are not so intermittent as these changes which occur in diabetes. Then again, there is no other way of explaining the increase in refraction except by the swelling of the lens. I think it is fair to infer that the change, as curious as it is, must be a lenticular one. Now a possible explanation of it has been given by Grimsdale. If there is an increase in the index of refraction of the cortical layers of the lens there is a more uniform index in the entire lens, and such a lens, of course, is less refracting than a lens which has a different index of refraction in its various layers. It seems to me that this is a plausible explanation of these cases.

DR. C. D. WESCOTT, Chicago: I am indebted to Dr. Zentmayer for his interesting remarks. As Dr. Roberts is not able to be here and was expecting to say something with reference to his own case, I should like to call attention to one or two points, and I will read my excerpt of his case. It was reported under the title "Transient Cycloplegia Due to Glycosuria:"

A man, aged 51, the subject of diabetes, complained of inability to read with his old reading lenses and inability to see distant objects distinctly without lenses. Heretofore he had seen distinctly, without lenses for distance, and with +1.75 Sph., both eyes, for near. The sugar in the urine was now 3/8 per cent., whereas two weeks before it had been 7 per cent. R. E. V. =6/22.5; L. E. V. =6/15. Manifest refraction was: R. E. +1.75 Sph. V. =6/5; L. E. +1.75 Sph. V. =6/5. The addition of +2.25 Sph., both eyes, was necessary to bring the near point to 13 inches. No lesion was discovered in either eye. One month later his general health was improved. His last glasses had been satisfactory until within a few days, but now they blurred his distant vision and required that he hold his book too close to the eyes. Vision, with correction, was 6/12. Manifest refraction showed: R. E. +1.00 Sph. V. =6/5; L. E. +0.75 Sph. V. =6/5; with +2.25 Sph. added for near. Nine months later he reported that his eyes had gradually returned to their previous condition and he used his original lenses for reading (+1.75). It would seem to us that this is really a case of increase of hyperopia in the course of diabetes, with a very small amount of paresis of accommodation; for the patient required +1.75 Sph. for presbyopia before his diabetes, and only +2.25 Sph. added to his distance correction when first seen by Dr. Roberts; and when seen later his

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presbyopia remained the same, while his hyperopia had diminished 0.75 D. in the right eye and 1.00 D. in the left; later still both the hyperopia and the slight paresis of accommodation disappeared practically, allowing the use of the original reading lenses only (+1.75).

I venture to say that if Dr. Roberts had examined his patient under complete cycloplegia he would have no doubt in his mind as to my view of the case; for it then would have been most evident that there was a positive decrease in the refraction of the eye, with possibly a slight paresis of accommodation, followed by a return to the original condition with improvement in the patient's health.

Since coming to Los Angeles, I have been advised by telegram that Dr. Ellis has just seen an additional case of diabetes in a woman aged 40, with a sudden increase of hyperopia. The patient had been wearing +0.50 Sph. for distance, and +2.50 for reading. One week ago these lenses gave satisfactory vision. She now requires +2.00 Sph. with +0.50 Cyl. Axis horizontal for distance. Vision is 6/7, and accommodation normal for her age.

THE IMPORTANCE OF A CERTIFIED OR PASTEURIZED BUTTER*

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NEW YORK

The title of my paper may seem somewhat out of the province of the activities of the Association of Certified Milk Commissions. However, the association has accomplished such laudable results in raising the standard of our milk-supply that it seemed only fitting that we should turn to it, in seeking a similar uplift of the standard of butter. It is indeed strange that in spite of our knowledge, the fruit of various investigations in this field, the attempts to provide a safe butter have been so feeble.

There is no need of repeating the evidence to the effect that cream contains tubercle bacilli even in larger amounts than the milk from which it is made. When the cream rises, whether it ascends by means of gravity or through the agency of centrifugal force, the fat globules carry with them a large proportion of the bacilli, which are filtered out from the underlying skim-milk into the cream and the sediment. The tubercle bacilli of the cream constitute the tubercle bacilli in the butter. It is difficult to state the percentage of contamination of the butter sold in large cities, but we probably shall not go far wide of the mark if we accept Cornet's[1] figure of 12 per cent. as an average. It has been demonstrated by Schroeder that these bacilli can maintain their virulence, in spite of the salt which the butter contains, for a period of three months. These facts naturally lead to a consideration of the subject which has been the main field of contention among those actively interested in the investigation of the cause of tuberculosis, namely, the importance of infection in man by the bovine type of tubercle bacillus, and of the alimentary tract as a portal of entry. It is not necessary in this place to discuss this question in detail. However opinions may vary on these questions, I think that almost all are now ready to accept the conclusion that the bovine bacillus constitutes a real menace to the welfare of infants and young children. The investigation in England by the British commission, the more comprehensive one in the United States by Park and Krumwiede, and that of the imperial Health Bureau of Germany force this deduction on us. So that it seems certain that in childhood, and especially in the first few years of life, bovine tuberculosis plays an important rôle.

So much for the contamination of butter by means of the tubercle bacillus. Investigations of recent years have directed us with ever-increasing frequency to the milk-supply as the source of epidemics of typhoid fever, scarlet fever, diphtheria and possibly some other of the infectious diseases. It is difficult to be precise in a discussion of scarlet fever; however, as regards typhoid fever we can adduce some interesting facts to illustrate the lesson of this article. If milk is infected with typhoid bacilli, these organisms will rise with the cream and be incorporated in the butter,[2] as we saw was the case with tubercle bacilli. It has, furthermore, been demonstrated by Bruck[3] that typhoid bacilli can maintain their viability and virulence in butter for at least twenty-nine days, and, indeed, multiply in this medium for the first few days.

In this connection it may be well to consider some phases of this topic which bear directly on our subject. It is claimed by some that the salting of the butter and its maintenance in cold storage kill the bacteria and render it a safe product. This question must still be considered an open one, in that a precise answer as to the exact influence of these factors on butter cannot be given. The consensus of opinion, however, seems to be that the addition of from 2 to 3 per cent. of salt, which is the usual salt content of commercial butter, has but a mild inhibitory effect on bacterial life or growth, and that in spite of the salt and the temperature of zero centigrade, bacteria have been found to multiply. These experiments record the results of bacterial counts of a gram of butter, and concern themselves with the estimation of lactic acid and other saprophytic bacteria. Such figures have little value for us, as we are concerned only with the viability of pathogenic organisms, such as the typhoid bacillus. As far as I have ascertained, a thorough study of this organism in this regard has not been made.

The attitude of the community toward butter and milk may be stated as follows: The people are warned not to drink milk unless it is certified or pasteurized; that is, unless it is pure or purified, on account of the danger of tuberculosis, typhoid, and other infectious diseases. Nevertheless they are urged to partake of butter which may well have these same pathogenic bacteria, but which by our silence we seem to concede is innocuous. It may be thought that the danger is slight because the amount of butter ingested is comparatively small. But, although this no doubt mitigates the evil, it does not by any means do away with it. I have shown elsewhere[4] that partaking daily of milk containing small numbers of tubercle bacilli may cause infection, whereas the same quantity given in one dose failed to produce tuberculosis. It should also be borne in mind that very young children, 2 years of age or younger, at a time when they are still very susceptible to infection by the bovine bacillus, consume considerable quantities of butter, and are thus exposed to infection.

When we come to consider the remedy of this evil, an evil which I realize is secondary to that of infected milk, we are met by the same difficulties and problems which beset us in the consideration of the milk problem—the ideal of a clean product which we can certify, and the practical makeshift of a safe product which we must permit. The certification of butter should impose the same requirement as the certification of milk, specifying

* Read at the annual meeting of the Association of Certified Milk Commissions, Philadelphia, May 24, 1911.

1. Cornet: Die Tuberkulose, part 1, p. 122.

2. Hess: Middle Milk Mixtures, THE JOURNAL A. M. A., Aug. 14, 1909, p. 523.

3. Bruck: Deutsch. med. Wchnschr., 1903, xxvi, 460.

4. Hess: The Subsequent Health of Children Who Drank Milk Containing Tubercle Bacilli, THE JOURNAL A. M. A., May 6, 1911, p. 1322.

besides that the butter be made under clean and sanitary conditions. The demand for certified butter could never be general, for just as the price of certified milk is prohibitive to many a householder, so it would be in the case of the butter. But there are many who, if told of the dangers of the ordinary butter, of its contamination by tubercle bacilli and possible other pathogenic organisms, would be quite ready to pay the additional price for the surety of having a safe product for their children. It would be a butter for children, just as the certified milk is primarily a milk for infants and children. Some dairy which has butter-making machinery, especially one situated at some distance from the railway and therefore handicapped in selling its product as milk, might be induced to put a certified butter on the market. In proportion to the amount of milk used in making butter, butter is less expensive than milk; in fact, this is one of the exceptional cases in which the manufactured product brings less than the raw material. I hope to see this idea carried out in the near future, and do not doubt that some one will be found to enter this field.

Although a certified butter is out of the reach of the masses at the present time, a pasteurized butter, which is the other form of safe butter, is well within their reach. It is noteworthy that in spite of the fact that so many of us realize the advantages of a pasteurized butter, that we know that it is the staple butter in some countries, for example, Denmark, and is used in many other countries, that we have not been able to create a sufficiently strong demand to force the supply of this product. I need not add that pasteurized butter has no distinctive taste, and in color, texture and other qualities is no different from unheated butter. I believe that it is high time that it be rendered possible to purchase a labeled pasteurized butter, especially for the use of children. In New York a butter of this kind will be put on the market in the near future, and will cost five cents more per pound than the raw butter. This increase in price is permissible at this time; however, I do not believe that it will be found necessary when the demand is determined and found adequate. I believe that if our young children are protected from infection through butter we shall, in a very practical and simple way, be making another step along the road of preventive medicine.

154 West Seventy-Second Street.

THE DIAGNOSIS OF PANCREATIC DISEASE

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In spite of the progress made in the knowledge of the physiology of the pancreas, its diseases remain difficult and uncertain of diagnosis. The cause of this is apparent in that the clinical aspects of pancreatic disease are in most instances indefinite and not characteristic, and many of the laboratory aids have not proved efficient. My desire to test the value of the newer methods devised for diagnosis prompted some work along this line in the Klinik von Noorden, in which I was associated in the work with Docent Dr. Salomon.

The newer methods of determining the pancreas function for diagnostic purposes aim to test for the presence of the ferments in the stool. To facilitate rapid peristalsis after a breakfast of mixed food followed by an enema, calomel 0.2 gm. and phenolphthalein 0.5 (as recommended by Muller) prove very satisfactory.

The two ferments made use of in the determination from the stool of pancreas activity are trypsin and amylopsin and their absence from the stool would point toward pancreas obstruction or insufficiency.

To determine the presence or absence of trypsin, the Fuld-Gross method may be used or the methods of Muller[1] and Schlecht,[2] which latter is as follows: The stool is rubbed up with a small quantity of glycerin to prevent evaporation, and several drops of the mixture placed in Petri plates containing Loeffler blood-serum and heated to 50-60 C. for twenty-four hours. The high temperature prevents the growth of bacteria, but not the action of the enzymes, and the presence of softening and depressions in the serum would indicate trypsin digestion, varying in degree according to the quantity of the enzyme present.

The simplicity of this method would commend its use, but already Schlecht has reported negative findings in the fat-stools of icterus, in obstipation, bloody stools and stomach carcinoma, and Komarelli has reported like observations. Frank and Schittenhelm[3] contend that the *succus entericus* also contains a proteolytic ferment, which would seem to place a doubtful value on these tests for the trypsin content.

The Fuld-Gross-Goldschmidt method (reference below) requires a solution containing 1 gm. each to the liter of casein, chloroform and sodium carbonate. To 5 c.c. of this solution varying dilutions of stool filtrate are added in different test-tubes, or, in the absence of a fluid stool, 5 gm. of stool is rubbed up with 20 c.c. physiologic salt solution, centrifuged and filtered and added to the casein solution. The mixture is allowed to digest at 38 to 40 C. for twenty-four hours, and the end-result is tested by the addition of a 1 per cent. acetic acid solution, which causes a precipitate in the tubes, when digestion is incomplete. The Fuld-Gross method proved very satisfactory in our work in the hospital and was carried out at the same time as the Wohlgemuth[4] method for amylopsin. The method of Wohlgemuth requires a 1 per cent. solution (Kahlbaum's soluble starch), which is best prepared on a water bath for eight to ten minutes with considerable stirring. Similar dilutions of stool filtrate as in the Fuld-Gross method are added to 5 c.c. of the starch solution in test-tubes, toluol added and the whole digested for twenty-four hours at from 38 to 40 C. At the end of this time the test-tubes are filled to near the top with tap-water, one drop of tenth-normal iodin solution is added to each tube, and a blue color no longer appears in the tube when the starch has been entirely digested. The dilution of stool used for both the trypsin and amylopsin tests are the same and are made with physiologic salt solution. In dilutions of 1 to 10, 1 to 100, 1 to 1,000 they are sufficient for all purposes. Of each of these dilutions it is best to take 2 c.c., 1 c.c. and 0.5 c.c., which are added to the tubes containing either casein or starch. The quantitative estimation of the ferment content is reckoned from the tube containing the greatest dilution, which has still been able to transform the starch or casein. The estimation is made in units, one unit representing the ability of 1 c.c. stool filtrate to transform 1 c.c. starch or casein solution. Suppose that the tube containing 1 c.c. of the 1 to 1,000 dilution is the greatest dilution which can transform 5

1. Deutsch. Arch. f. klin. Med., 1907, xci; 1908, xcii.
2. München. med. Wchnschr., 1909, p. 725.
3. Zentralbl. f. d. ges. Physiol. u. Path. d. Stoffwechs., 1909, p. 881.
4. Biochem. Ztschr., 1909, xxi.

c.c. of starch solution; then 1 c.c. of undiluted filtrate would thus be able to digest 5,000 c.c. of starch solution, which would represent 5,000 units, a normal finding. The number of units usually ranges between 500 and 5,000, though cases may show 10,000 units and even higher, and 100 units may be considered the minimum. In my tests the non-pancreatic cases did not fall below 250 units, while the greatest interest attached to those giving a smaller number of units, which pointed to a deficiency of pancreatic secretion.

Wohlgemuth tied off the pancreatic ducts of a dog and found by his starch test that the stool contained a minimum quantity or practically no diastatic ferment. By means of a Thiry-Vella fistula, he found that the amylopsin of the *succus entericus* was very small in comparison with that of the pancreatic juice, and inferred that the amyloptic ferment present in the stool was in great part pancreatic.

Wynnhausen[5] worked with the Wohlgemuth methods, and in four cases of pancreas disease his findings were confirmative in giving results under 50 units. In two cases he worked simultaneously with the Fuld-Gross method and found low values in both tests.

Hirschberg[6] also found Wohlgemuth's method reliable in finding scanty diastatic ferment in the stool of pancreatic patients, at the same time finding by similar methods the increase of the ferment in the urine.

My clinical results with these methods may be given briefly as follows: My first attempts were with the Wohlgemuth methods of estimating the diastatic ferments in the stool. In the beginning the results were unsatisfactory and I soon detected the cause of this in the character of the cathartic used in order to obtain fluid stools. Rhubarb, cascara and the aperient waters frequently gave negative results, until calomel and phenolphthalein, as suggested by Muller, were used. In fifty non-pancreatic cases the stools showed ferment values ranging from 500 to 10,000 units. These cases included heart (compensated and uncompensated), diarrheas, stomach and intestinal neuroses, cardiospasm, organic nervous diseases, diabetes, and in nine cases of icterus, which were of special interest, the ordinary catarrhal icterus showed a normal range of value. A malignant jaundice which was suspicious of a pancreas obstruction, with much fat and muscle fiber in the stool, showed a value of 500 units, and at autopsy showed the disease limited to the bile passages and no pancreatic lesion. In a second case, which appeared at first malignant, 10,000 units were found, and pancreas disease was correctly excluded by subsequent history. The pancreas diseases were as follows: 1. Acute pancreatitis with necrosis, which came to operation in the Klinik Hochenegg, showed a value of 25 units. 2. Malignant icterus (Klinik von Noorden), 20, 25 and 100 units. Autopsy disclosed carcinoma of the pancreas head and of the bile-passages. 3. Malignant icterus (Klinik von Noorden), the patient operated on in the Klinik von Eiselberg, showed a value of 20 to 25. Exploratory operation revealed the entire region of the bile-passages, duodenum and pancreas head entirely matted together. No further exploration was attempted and the patient was taken home shortly after operation. 4. Acute pancreatitis (Klinik von Eiselberg), patient operated on four weeks previously, healed, with no disturbance of digestion or gross changes in stool, showed 5,000 units. 5. Pancreatic cyst operated on by Dr. Joseph Ransohoff (Cincinnati Hospital) gave 25 units.

5. Berl. klin. Wchnschr., 190, No. 300; 1910, No. 11.
6. Deutsch. med Wchnschr., 1910, No. 4.

These results would tend to show that considerable reliance may be placed on these methods.

Low unit values with both the Wohlgemuth and Fuld-Gross methods alike seem to point to a pancreatic obstruction or insufficiency.

The two tests mentioned have a rational basis and commend themselves also on account of their simplicity.

22 West Seventh Street.

DEATH OF FETUS DUE TO TWISTING OF CORD IN UTERO

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The following case is reported with the idea that it may be of interest to some medical men who have had similar cases.

The patient was 18 years old, of Finnish nationality, pregnant for the first time, in good health and had always felt well. When six months pregnant, she noticed that there seemed to be no life. On examination no fetal movements could be detected. Rest was advised, and two days afterward labor pains came on. No effort was made to check them and in four hours the fetus, which apparently had been dead three or four days, was born. The cord was about 18 inches long. About 6 inches from the placental attachment, the cord had been twisted into a hard knot. From the placenta to the knot, the cord was normal. Beyond the knot to the fetus, the cord was beginning to shrink away and had been dead for a number of days. No other abnormal conditions were observed and to my mind it was merely a case in which the twist had shut off the blood-supply and killed the fetus. This patient lived in a second story and thus had to climb the stairs very often, also having to carry her own wood and water. This may have had something to do with the twisting of the cord.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

LIQUID NITROUS OXIDE—Nitrosum oxidum liquefactum.—Liquid nitrous oxide is dinitrogen monoxide, N_2O, in the liquid state.

Liquid Nitrous Oxide is a colorless mobile liquid, boiling at −89.8 degrees C. and solidifying at −102 degrees C., and having a sp. gr. of 0.937 at 0 degrees C. Liquid nitrous oxide returns to the gaseous state when the pressure is reduced and the temperature raised. The gas obtained from liquid nitrous oxide should have the properties of and respond to the following tests: It should be colorless, have a faint odor and a slightly sweet taste; it should not be inflammable, but should support combustion; it should be soluble in one volume of water at ordinary temperatures. No reaction should occur when 4 liters of the gas to be tested is passed slowly through each of the following: barium hydroxide solution, neutral litmus solution, silver nitrate solution, potassium iodide solution containing starch solution and alkaline mercuric potassium iodide solution.

If nitrous oxide gas be shaken in a gas burette with an alkaline solution of pyrogallol, the contraction in volume should indicate not more than 2 per cent. oxygen.

If nitrous oxide gas, after removal of the free oxygen be exploded with hydrogen gas in a Hempel gas apparatus, the reduction in volume should be at least 94.9 per cent. of this

oxygen free gas, indicating not less than 93 per cent. dinitrogen monoxide, N_2O, in the original material.

If the above quantitative estimations be made in nitrous oxide gas, the residue of nitrogen gas should not exceed 5.5 per cent.

Actions and Uses.—Nitrous oxide gas causes anesthesia by direct influence on the central nervous system, as well as by the production of asphyxia. After a few deep inspirations, the face assumes a deadly pallor and the patient becomes unconscious. It raises the arterial blood-pressure. The death-rate from this gas, used as an anesthetic, is less than 1 to 500,000.

The gas derived from the liquid nitrous oxide is applicable to produce anesthesia for brief operations. For more prolonged anesthesia, admixture with oxygen is used. It is also used for the purpose of introducing anesthesia with ether or chloroform.

Dosage.—Liquid nitrous oxide is obtainable, under pressure, in steel cylinders. The liquid is allowed to evaporate in the cylinder and the gas is inhaled by the patient from a suitable inhalation apparatus.

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The following dosage forms of accepted proprietary articles have been accepted for N. N. R.:

Cargentos Aseptic Vaginal Tampons.—Colloidal Silver Oxide Aseptic Vaginal Tampons. Aseptic wool tampons impregnated with 0.325 Gm. (5 grains) of Cargentos. The tampons are contained in No. 10 thin gelatin capsules. A silk cord is attached to the capsule, permitting the ready removal of the wool.

Cargentos Dusting Powder.—Colloidal Silver Oxide Dusting Powder. A mixture containing cargentos 10 parts, purified talcum and magnesium carbonate sufficient to make 100 parts by weight.

Cargentos Ointment.—Ointment of Colloidal Silver Oxide. An ointment said to contain cargentos 1 part with anhydrous wool fat 9 parts by weight, put up in collapsible tubes.

Therapeutics

ALOPECIA: BALDNESS

Several different forms of this condition have been described, of which the following are the types.

Alopecia congenitalia is an exceedingly rare condition in which a child is born without any hair. Microscopic examination of the skin in some cases shows an entire absence of follicles. In other cases the follicles are present, and after weeks, months, or possibly two or three years, the hair grows, although it is usually finer and thinner than in the average child of the same age.

Another variety is *alopecia senilis*, in which the loss of hair is an accompaniment and an indication of the general atrophy of the tissues throughout the entire body.

There is the disease called *alopecia areata*, which is characterized by a complete falling of hair from limited areas of the scalp or other hairy portions of the body. This is a distinct disease, and will not be considered in this connection.

There remains the form of *alopecia prematura*, in which the patient loses more or less of the hair to which he has become accustomed, but in which this loss is not associated with the changes characteristic of old age. This form of premature baldness is customarily divided into two classes; the idiopathic and symptomatic. In the idiopathic form few causes can be found for the occurrence, while in the symptomatic form there will be found some pathologic condition of the scalp, or some disease which has affected the general nutrition of the entire body. Under the latter head may be included the falling of the hair which so frequently follows typhoid fever, and which has recently been discussed at some length in this department. Omitting at the present time a discussion of the other forms of alopecia, a few words will be said in regard to the common form of premature alopecia.

Recalling the anatomy of the skin, it will be remembered that the hair grows from the hair follicle, at the bottom of which is the hair papilla, which is supplied with capillary blood-vessels and nerves, and from which the new cells are developed which form the hair. These at first are soft, and later become hard and cohere so as to form the normal hair. Under abnormal conditions when the general nutrition of the body is impaired, and when in particular as an incident of this general impairment of nutrition the nutrition of the hair papillæ is disturbed, these new cells do not undergo their normal development, but, remaining soft, the hair drops out. If the impairment of nutrition is not permanent, a new hair will form. If, however, the impairment of nutrition continues, the opening of the follicle may finally be closed up, and then no further development of hair from that follicle will take place.

Various causes may give rise to this interference with development; various infectious diseases, especially the exanthemata, may do so. Erysipelas is a common cause of such interference with nutrition, as is also pregnancy. Various forms of mental and nervous disturbance, such as shock or worry, may also interfere with the development of the hair.

The causes which have been enumerated are general causes. There are, furthermore, a series of causes which are local in their action. Among these may be mentioned, as the most prominent cause, the occurrence of dandruff, which in most cases is due to a cutaneous disease variously designated as eczema seborrhoicum or dermatitis seborrhoica. There is even now some difference of opinion as to the ultimate cause of this seborrheic condition of the scalp, some attributing it to a microscopic organism, and others denying that such a cause has been determined. It must be admitted that very many cases of dandruff are seen in which apparently there is no special tendency to falling of the hair, but, on the other hand, it will be found that a very large proportion of patients who are losing their hair in this premature way are suffering from some form of dandruff, generally the seborrheic form.

TREATMENT

The treatment of baldness, whether due to a local inflammation of the scalp or to the result of some general disturbance of nutrition, is a somewhat puzzling matter. The treatment adopted must be continued for several weeks or even months before a result of much importance can be observed. Obviously at first the constitutional condition of the patient should be carefully inquired into, and any disturbance of it should be promptly remedied. If care and worry are apparently important factors in the disease, these should be remedied as far as possible. If the digestion is not properly performed, measures should be adopted which will correct it.

Certain internal remedies have appeared to have some control over the nutrition of the skin and scalp. Perhaps none surpasses arsenic in this respect, and in many cases the use of this drug will seem to contribute to a favorable result. If anemia is present, iron may be combined with arsenic. For instance:

℞	Gm. or c.c.		
Arseni trioxidi	.04		gr. ⅔
Massæ ferri carbonatis	2	or	3ss

M. et fac pilulas 20.

Sig.—Take one pill, three times a day, after meals.

Another drug which has appeared to have a selective action on the skin and scalp is sulphur, and in some cases this drug has been given with benefit, especially if there is constipation, or if there is observed a tendency to suppurative inflammation of the skin.

The question of local applications to the scalp is one which must be approached with some hesitation. The variety of drugs which have been recommended for application to the scalp to stimulate the growth of the hair is so great that one naturally feels suspicious in regard to the value of any one. This, however, must not discourage the physician from trying to select a suitable one which will prove of benefit to his patient. If dandruff is abundant on the scalp, one of the simplest applications is a solution of borax, with glycerin and water.

℞	Gm. or c.c.		
Sodii boratis	4		3i
Glycerini	25	or	fl.3v
Aquæ	ad 200		ad fl.3vi

M. et Sig.—Shake, and apply externally twice a day.

This, like all applications designed for use on the scalp for the purpose of stimulating the growth of the hair, should be applied to the scalp and not to the hair. This may be accomplished by using a comb to part the hair, separating it so that the application may be made directly to the scalp, and when the application has been made along one part, making successive applications along other parts, until the application has been made over the entire scalp.

Another remedy which has been extensively used for the relief of dandruff is resorcin. This may be used in the form of either a lotion or an ointment.

℞	Gm. or c.c.		
Resorcinol	6		3iss
Alcohol	75	or	fl.3ii
Aquæ	ad 200		ad fl.3vi

M. et Sig.—Shake and apply to the scalp twice a day.

Or,

℞	Gm. or c.c.		
Resorcinol	50		gr.x
Adipis lanæ hydrosi	25	or	3i

M. et Sig.—Rub into the scalp twice a day.

These remedies are especially useful when there is any evidence of inflammatory action in the scalp because of their soothing and anti-inflammatory action. In these cases remedies which are stimulating should be avoided. If there is no evident pathologic process going on in the skin except the falling of the hair, more stimulating remedies may be applied. Of these the most important are alcohol, quinin, cantharides, and ammonia. These, with resorcin, which has been already mentioned, are the fundamental ingredients of most popular hair tonics. Bay rum, a favorite application to the hair with many people, owes its pleasant effect largely to the alcohol contained in it.

The tincture of cantharides is often combined with alcohol and castor oil as in the following prescription:

℞	c.c.		
Tincturæ cantharidis	10		fl.3ii
Olei ricini	5	or	fl.3i
Alcoholis	ad 100		ad fl.3iii

M. et Sig.—Apply externally.

When corrosive sublimate is used the proper strength is half a grain to an ounce (0.03 gm. to 30 c.c.) of alcohol.

Ammonia may be used, as in the following prescription of Erasmus Wilson:

℞	c.c.		
Aquæ ammoniæ fortioris	10		
Chloroformi	10		
Olei amygdalæ expressi	10	or	aa fl.3ss
Olei limonis	3		fl.3i
Alcoholis	ad 100		ad fl.3iv

M. et Sig.—Apply by dabbing on the scalp with a small piece of cloth, but not with friction.

The hydrochlorid of pilocarpin may be used in the form of an ointment:

℞	Gm. or c.c.		
Pilocarpini hydrochloridi	1		gr.xv
Olei lavendulæ	1	or	℥x
Petrolati	10		3iiss
Adipis lanæ hydrosi	30		3i

M. et Sig.—Use externally.

A sulphur ointment may sometimes be used with advantage.

PROPHYLAXIS

It is apparently little considered by the average individual that the hair should receive as particular care as do the teeth and nails. To be sure, it is the custom of most people to comb their hair, but this is generally done for the cosmetic rather than for hygienic effect. By improper care of the hair great harm may be done, and conversely, people who desire to preserve their hair in good condition should take pains to encourage its healthy growth. Many people overdo the matter of making applications to the scalp, applying strong alcoholic preparations or other so-called tonics too frequently. Others, with an excess of pains, bathe it too frequently, especially with cold water, as is the case with people who take a daily cold shower bath. Others indulge too frequently in the luxury of a shampoo. While occasional washing of the hair is beneficial, too frequent application of water to the hair does harm by withdrawing the natural oil from the hair and scalp. The best authorities advise shampooing the scalp not more frequently than once a week and not less frequently than once a month. Probably nothing better can be used on these occasions than Castile soap and warm water.

It is a common belief, and appears to be well founded, that too closely covering the head has a bad effect on the growth of the hair. The stiff hats so commonly worn by men at the present day, which fit so closely about the head, and which are worn by many so constantly, it can readily be believed would have a bad influence on the hair. In the first place, the tight binding of the scalp must interfere with the circulation through the scalp and around the hair papillæ; and in the second place, the space in the crown of the hat must allow a considerable quantity of air to become heated above the temperature of the body, and this also must have a bad effect on the nutrition of the hair.

While a certain amount of sunshine and fresh air is probably beneficial to the hair, on the other hand, it is probably better that the hair and scalp should be protected from constant exposure to the rays of the sun and to the wind and dust.

With women, the case is somewhat different, but they have their special unhygienic practices which must be mentioned and condemned, especially the curling of the hair by winding it about hot curling-irons or doing it up in curl-papers over night.

In women, if the hair is found to be cracking at the ends and becoming thin and unhealthy, the ends should be cut off. Most men habitually have their hair cut frequently. Whether this is of advantage or a mistake is not so easily decided. There are good arguments on both sides.

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INFANTILE SPLENIC ANEMIA AND KALA-AZAR

Among the affections whose etiology is still more or less obscure, the so-called blood diseases occupy a prominent place. It has long been acknowledged that some of these which we now consider as entities may in reality consist of a group of distinct diseases, closely resembling each other clinically, but independent in causation. One such instance, indeed, is well known—that of infection with *Bothriocephalus latus* and its resulting anemia, distinguishable from "primary" pernicious anemia only by the presence of the parasite. Another somewhat similar instance has apparently been brought to light by a group of Italian investigators, in the splenic anemias of childhood. These may be differentiated clinically into a febrile and afebrile type; and in the former, at least as found in the Mediterranean valley, a parasite has been demonstrated with remarkable constancy. In 1905, Pianese first announced the finding, in various organs of patients with this disease, of organisms morphologically indistinguishable from the Leishman-Donovan bodies of kala-azar. Since then various investigators have amply confirmed this, and an inspection of the accumulated data as given in a recent article by Jemma and Di Christina,[1] leaves little doubt as to the accuracy of their conclusions. Strangely enough, the cases so far reported are limited to a rather narrow geographic environment—Sicily, the Liparic Islands, Calabria, Tunis and Malta; one case has recently been found in Lisbon. That the real distribution will finally prove to be so restricted is of course improbable; with wider dissemination of knowledge concerning the disease, a much wider range is to be expected, more especially as the two affections most likely to be confused with it, malaria and Malta fever, infest much the same districts. The peculiar form of infantile splenic anemia with fever, known as *ponos*, which is endemic in the two small islands of Spezzia and Hydra near the Peloponnesus, is clinically indistinguishable from this infection and proper investigation will very probably prove their identity.

Clinically, the disease is distinguished by splenic enlargement, anemia and irregular fever, and less characteristically by gastro-enteric disturbance, usually diarrhea, enlargement of the liver, in some cases hemorrhages from the mucous membranes and under the skin, and edema of the feet and ankles. The splenic swelling is very hard and may extend across the abdomen. The anemia may be quite marked and is characterized by a peculiar waxy pallor, though at times the skin may be earth-colored or subicteric. The color-index seldom varies much from unity; nucleated red cells are absent or very rare. Leukopenia, with predominance of mononuclear cells, seems to be the rule, though at times leukocytosis occurs. The fever is almost typical, inasmuch as there may be several exacerbations and remissions in the course of a single day. The disease, as a rule, runs a chronic course, lasting over months or years, and is subject to marked remissions, when fever is absent and the general condition improves temporarily. Although, as its name indicates, it was at first believed to be limited to infancy, recent cases have been reported in adolescence and early manhood. The ultimate diagnosis rests, of course, on finding the parasites, most conveniently as a rule by splenic puncture; their presence in the peripheral blood is disputed and is at best very rare.

As in the case of kala-azar, little or nothing is known of the contributing etiologic factors. Its sporadic occurrence, in neighborhoods apparently free from previous cases, precludes the idea of direct contact infection; and this, in connection with the protozoan character of the parasite, has directed attention to the possibility of intermediate animal hosts. The great majority of cases have come from among the poorer classes, mostly peasants and fishermen, all of whom are possessors of large numbers of dogs. Investigation of spontaneous infection of these has led to diverse results. In Tunis four of 253 animals were found infected, while in Palermo, like Tunis a site of the disease, none were found in 300 investigated. On the other hand, in Rome, where no human cases have hitherto been reported, sixteen of sixty dogs gave positive results. In regard to the possibility of an insect carrier, Patton's work on kala-azar, in which he found the Leishman-Donovan bodies infecting the bedbug, is of interest.

The identity of this type of splenic anemia with kala-azar is still a matter of dispute, which probably will not be settled until our knowledge of the parasites is considerably increased. In favor of the acceptation of a common organism for the two infections are the following points: first, the identity in morphology and distribution in the host of the parasites; second, the similar pathologic changes—splenic and hepatic enlargement, alterations in the bone-marrow, and intestinal ulceration; third, the chronic course, extending in both over months. On the other hand, the organism of the Mediterranean disease has been cultivated by one observer to indefinite generations on the Novy-MacNeal medium, while that of kala-azar has been so far grown only on citrated blood and for not over three generations. The Mediterranean

1. Jemma and Di Christina: Centralbl. f. Bakteriol., u. Parasitenk., 1911, lix, 109

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organism has been inoculated into dogs, though, it is true, with some difficulty. Attempts to inoculate these animals with the organism of kala-azar have so far been unsuccessful, nor have any cases of spontaneous infection been found in some 1,000 dogs investigated. And finally, the almost complete limitation of the Mediterranean infection to childhood, and the occurrence of kala-azar at all ages, might argue against their identity.

It is not likely that any considerable number of cases will ever be found in the United States, where climatic and hygienic conditions are so different. Sporadic cases may quite possibly occur, however, and it behooves our American practitioners, particularly those whose work leads them much among the Italians, to be on the alert for them.

CIVILIZATION AND THE TROPICS

It has long been a matter of popular belief that tropical or subtropical regions are unsuited to the higher developments of civilization, and that the whip of more rigorous conditions is needed to awaken the sleeping elements of progress in man. The present-day distribution of civilization would seem to support this view. With few exceptions our most progressive communities are located in temperate regions; and, at least until recently, any invasions of the tropical and semitropical zones by representatives of our northern civilization have either suffered rapid decline, or have been kept vigorous only by constant reinforcement from their source.

It would seem that this superiority of the colder latitudes as a place for human development has not always existed. Almost without exception, the parent sources of human progress, so far as one can trace them, have been in tropical or at least in subtropical countries. Mesopotamia in Asia, Egypt in Africa, the eastern Mediterranean valley in Europe—all represent sites of apparently original civilizations, and are located well within the warmer zones. So, too, our indigenous American civilizations have been located wholly in the warmer latitudes of the continent. The mysterious relics of Central America and Mexico on the one hand, and of Peru on the other, are so situated. It is true that in this latter case the altitude is such as to change climatic conditions; but there is evidence to show that marked elevation has taken place here comparatively recently, and that the more ancient remains in this region actually antedate this elevation.

If, then, the tropics, originally the source of human culture, have been incapable of maintaining it, some change in condition must be responsible. One probable explanation, in view of recent experience, lies in the spreading of the peculiarly tropical diseases, due to the increased exchange of people and products so characteristic of later years. The decline of Greece and Rome has been ascribed to the introduction of malaria along with African slaves, and in our own continent we have an even better-established instance of this sort. Torquemada, speaking of Yucatan, itself a site of prehistoric American civilization, says: "Men die of pure old age, for there are none of those infirmities that exist in other lands; and if there are slight infirmities, the heat destroys them and so there is no need of a physician there." But with the coming of the white man and negro and their alien diseases, conditions changed until southern Mexico and Central America became notorious as hotbeds of tropical fevers.

With progress in sanitary science, this position of the warmer latitudes promises to undergo another alteration. Already in Cuba and Panama the possibility of mastery over these diseases has been shown, and it is only a matter of time until the methods and results attained there have a world-wide application. When this has occurred, will the warmer latitudes resume their old relationship as forcing-beds of human progress, or will they retain their present minor importance? It may well be, even with elimination of special disease, that the warmer climate will be unsuited to the white man, with his centuries of habituation to a colder sun. In that case, will our darker-skinned brother, free from the handicap of disease, take up the torch in his turn again? The problem has its philosophical as well as practical interest, and on the manner of its solution will depend in large measure the fate and character of future man.

THE PURITY OF ANESTHETICS

While pharmaceutical chemists work untiringly in attempting to discover new compounds that may be of use in medicine, there seems to be a disinclination to study those already discovered with a view to improving their quality. At least, those chemists who could render most efficient service are but rarely attracted by such work. The result is that studies on the purity of drugs in common use are usually left to those who are commercially interested in them or to the overworked federal or state authorities who, as best they can, safeguard the health of the people by watching for the grosser adulterations.

But many drugs and medicines are sorely in need of a careful scientific study, both as to their purity and as to the effects of various impurities on their medicinal action. The painstaking investigations which these drugs require might well attract the scientific workers in universities. The composition of anesthetics—drugs in which small amounts of impurities may have serious effects—is an illustration. We have previously called attention to the valuable service rendered by the Council on Pharmacy and Chemistry, when it secured the investigation of commercial brands of compressed oxygen.[1] In the Propaganda for Reform department of this issue, the Council gives the results of an examination of commercial nitrous oxid, by Professor Smith of the Lewis Institute.

1. Smith, W. R., and Leman, E. D.: THE JOURNAL A. M. A., March 18, 1911.

In this connection, attention should also be called to similar work that is being independently pursued by Professor Baskerville of the College of the City of New York. Professor Baskerville is making an exhaustive study of the purity of oxygen and of anesthetics—a piece of work which should do much to increase our knowledge of anesthesia, and which should materially lessen the accidental deaths arising therefrom. So far he has published reports on ether, oxygen and nitrous oxid, and it is interesting to note that his findings and the tests for purity which he proposes for compressed oxygen and liquid nitrous oxid,[2] are in close accord with the findings of Professor Smith and the standards adopted by the Council on Pharmacy and Chemistry of the American Medical Association. Let us hope that other investigators may realize that a reinvestigation of many old subjects is well worthy of their attention and perhaps of vastly more importance to public welfare than the ceaseless search for new substances.

Current Comment

TEXAS DECISION ON "UNPROFESSIONAL CONDUCT"

In another department[3] appears an abstract of the decision of the Court of Civil Appeals of Texas, affirming the action of the State Board of Medical Examiners revoking the license of J. Lafayette Berry. According to the evidence in the case, Berry advertised himself as a physician especially skilled in the treatment and cure of gall-stones. To those confiding persons who paid him in advance as much as they were able to secure he administered olive oil and epsom salts, thereby converting these persons into perambulating soap factories, guaranteed to produce large quantities of "gall-stones" on short notice. This fraud has already been exposed in THE JOURNAL.[4] The court held that such methods were "grossly unprofessional and dishonorable, and of a character likely to deceive and defraud the public," that the board was warranted in revoking Berry's license and that the lower courts were right in sustaining the action of the board. The attorneys for the defense pleaded that the law did not define unprofessional and dishonorable conduct; that representatives of other "schools" of medicine than the defendant were not competent to testify against him and that violation of the "code of ethics" of the medical profession was not a crime in Texas. The court, however, made short work of these pleas, saying, "His [Berry's] testimony alone was sufficient to justify the jury in finding that his treatment was a fraud and that he knew it and also knew that the material passed by his patients which he pronounced gall-stones was not actually gall-stones. . . . When the unprofessional conduct of a member of the medical profession is of such a character as to deceive and defraud the public then the law denounces such conduct and strips the offender of the means which makes it possible to impose on the credulous and unwary." J. Lafayette Berry has, we are informed, disappeared from Texas since his conviction. We do not know in what state he will resume the wholesale soap business, but we respectfully commend him to the tender care of the various state boards of medical examiners, feeling sure that sooner or later J. Lafayette will once more yield to a desire to relieve his victims of "gall-stones" (and cash). Should he at any time put in an appearance some interesting facts regarding his professional history may be secured from the attorney for the Texas State Board of Medical Examiners.

2. Jour. Industr. and Eng. Chem., July and August, 1911, pp. 471 and 579.
3. Medicolegal Department, p. 582.
4. Fruitola, THE JOURNAL A. M. A., Sept. 24, 1910, p. 1128; also April 16, 1910, p. 1314.

A TRUST WHICH DESERVES ENCOURAGEMENT

In a recent speech in the United States Senate, Hon. Robert L. Owen of Oklahoma, in an argument for a national Department of Health, said, after reading the recent editorials of *Collier's Weekly* into the record: "Mr. President, the American Medical Association has published at great length scientific and careful analyses of most of the nostrums and patent medicine frauds of this country. They have given wide publicity to it and in that way they have excited the violent animosity and hostility of the patent medicine people so that the declaration is made by them that the medical profession comprises a trust. In point of fact, if the American Medical Association forms a trust and if they are concerned in establishing a Department of Health with a view to preventing sickness, which would be the purpose of the Department of Health, they would be engaged in tearing down their own business; they would be engaged in depriving themselves of their patients from whom they make their living. It would be the only trust in existence which is concerned in diminishing its own revenues and destroying its own financial foundation. Such a trust as that is a very noble trust and one that deserves encouragement." It might also be of interest to our readers to know that when Senator Owen asked permission to insert the *Collier* editorials in the record, Senator Gallinger of New Hampshire was the only member of the senate who objected. Senator Gallinger is also the only member of the United States Senate who claims a medical degree.

THE PROGRESS OF CREMATION

Cremation in the present-day manner seems to have had its inception in 1866. There are now about eighty crematories in Europe; twenty-two are in Germany, seven in Switzerland, and thirty in Italy. About 13,000 bodies were cremated in Europe during 1909. Many Americans have died in Europe, whose bodies have been cremated, the ashes having been sent to their American homes for inurning or burial. In 1874 the Cremation Society of England was founded, Sir William Thompson being made its first president. There are now at least thirteen crematory furnaces in England in which, during 1909, more than 800 bodies were burned. Cremation is thus a legal procedure in that country. In the United States 13,012 cremations were recorded between the years 1876 and 1900. The number of crematories is steadily increasing; it is not rare to see among the tombs

in cemeteries, columbaria, where the ashes of other dead are inurned. In Boston the idea of substituting crematories for potter's fields has long been agitated; this might well be done in all large cities, with obvious advantages and with no essential disadvantage of any kind whatever. At quarantine in New York harbor the bodies of immigrants who have died of infections are (in accordance with the statutes) burned on Swinburne Island in the lower bay; though this is not done if the relatives have religious scruples against cremation. In New York state a person may direct what is to be done with his body, provided the disposal be consistent with propriety and decency. And such is no doubt the prevailing sentiment and legal status of the matter in American communities.

Medical News

CALIFORNIA

A New Case of Plague.—A case of bubonic plague, said to have been transmitted by ground squirrels, is reported from Contra Costa County. The patient, 7 years of age, is reported to have died July 26, after having been scratched and bitten by a ground squirrel.

Changes in Stanford Faculty.—The following appointments have been made in the Medical Department of Leland Stanford Jr. University: Dr. Thomas Addis, Carnegie Research scholar, F.R.C.P., Edinburgh, assistant professor of medicine, to have charge of the work in clinical chemistry; Dr. James Eaves of Edinburgh and Guy's Hospital, London, instructor in surgery, to have charge of surgical pathology; Drs. George Lyman, W. H. Banks, William R. P. Clark, Walter Schaller and W. H. P. Luttrell, assistants in the medical dispensary, and Drs. W. Winterberg and Isaac Walton Thorne, assistants in the surgical dispensary. Provision has also been made for the appointment of an academic professor of obstetrics and gynecology.

Personal.—Dr. Fred Baker, San Diego, who went to Brazil as physician of the Leland Stanford Jr. university expedition, expects to return by the way of Panama, next month.——Dr. Phil. Abbott, Piedmont, has returned from Europe.——A bomb was exploded on the front porch of the home of Dr. Charles A. Davis, Pasadena, July 16.——Dr. William V. Brem has accepted the chair of pathology in the University of California, Los Angeles, and will open a clinical laboratory in connection with Dr. Avrum H. Zeiler.——Dr. P. S. Goodmann, Sutter Creek, is recovering slowly from burns sustained a few days ago when his sanatorium was burned.——Dr. John Wesley Trueworthy is reported to be critically ill at his home in Los Angeles.

COLORADO

Church Opens Hospital.—The Methodist Church of Colorado Springs has rebuilt and opened Bethel Hospital at a cost of $25,000.

Opium Smuggled.—Custom officers report that large quantities of opium are being smuggled into Pueblo, Colorado Springs and Denver by proprietors of opium dens. In a raid lately made by the Denver police, 125 pounds of opium was found and confiscated.

Personal.—Dr. and Mrs. Edward Jackson, Denver, are spending the summer in Great Britain.——Dr. Perry F. Perdue, Sterling, who was recently operated on for appendicitis, is convalescent.——Dr. Lewis E. Lemen and Dr. Josiah N. Hall, Denver, and Dr. Vivian Russell Pennock, Longmont, have resigned from the State Board of Health.

GEORGIA

University of Georgia to Assume Control of the Medical School at Augusta.—The bill authorizing the University of Georgia to take over and assume full control of the Medical College of Georgia, Augusta, was passed by the Georgia legislature and has been signed by the governor. This will mean extensive improvements in the medical school at Augusta.

IOWA

Health Train for Iowa.—The State Board of Health is planning to equip a state health train which will commence a thorough propaganda on the lines initiated by Louisiana. The chief purpose will be to bring into the home knowledge of more sanitary methods of living, to give practical everyday health hints for the home, and to spread the antituberculosis campaign.

Personal.—Dr. David Carson, Council Bluffs, has been elected secretary of the Council Bluffs Medical Association, vice Dr. John Frederick Spriak, deceased.——Dr. John H. Crippen, Waterloo, is reported to be critically ill at his home.

KANSAS

State Board Elects.—At the June meeting of the Kansas State Board of Medical Examiners, Dr. Albert S. Ross, Sabetha, was elected president and Dr. Henry A. Dykes, Lebanon, secretary.

Personal.—Dr. Samuel M. Myers, Potter, is reported to be seriously ill as the result of an automobile accident in Easton, July 26.——Dr. Willard A. Phares, Wichita, has returned after a year abroad.——Dr. William T. McKay, Arkansas City, for several years physician to the Chilocco Indian School, has resigned.

Does Not Approve Madstone.—At the request of Dr. Samuel J. Crumbine, secretary of the State Board of Health, the attorney general has ordered the arrest of the owner of a madstone in Hutchinson, if he endeavors to use it in an effort to cure a boy who was bitten by a dog in Winfield a few days ago. The county authorities have been instructed to find the boy and have him sent to the State University Hospital, Rosedale, where Pasteur treatment will be administered.

MARYLAND

Baltimore

New Laboratory Building.—A three-story building will be erected in the rear of the Baltimore Medical College, 22 by 68 feet, and at a cost of $3,000, to be used for laboratories.

Personal.—Dr. G. Halstead Boyland, who is now traveling in Europe, sails for home, August 16.——Dr. Christian Deetjen, who recently underwent an operation for prevention of cancer of the skin due to exposure to *x*-rays, is reported to have recovered.——Dr. Thomas C. Bussey, Texas, Baltimore County, is reported to be critically ill on account of a cerebral hemorrhage.——Bishop Luther B. Wilson, M.D., who has been seriously ill with fever contracted in Portuguese East Africa, is reported to be convalescent.

Corrections.—Attention has been called to three errors in the news from Maryland: In the item "Portrait of Old Physician," Dr. William J. Todd, Mount Washington, is the chairman of the committee, and not Dr. William Tarun of Baltimore, as stated on page 401 of THE JOURNAL of July 29, and the name of the society should be "Baltimore County Society" and not "Baltimore Medical Society."——In THE JOURNAL of August 5, page 488, the item entitled "Fund Raised for Pathology" states Dr. John Randolph Winslow as the one through whose efforts a large sum of money was added to the maintenance fund. The credit of this work should be given to Dr. Randolph Winslow.

MICHIGAN

Upper Peninsula Physicians Meet.—At the annual meeting of the Upper Peninsula Medical Society, held in Escanaba, July 27-28, the following officers were elected: president, Dr. Charles L. Girard, Escanaba; vice-presidents, Drs. Edward Sawbridge, Stevenson, and Alfred W. Hornbogen, Marquette, and secretary, Dr. Calvin R. Elwood, Menominee. Menominee was selected as the next place of meeting.

New County Societies.—The physicians of Cheboygan met July 25, and organized the Cheboygan County Medical Society. The following officers were elected: president, Dr. Wilbur F. Reed; vice-president, Dr. Willis E. Chapman, and secretary-treasurer, Dr. Charles B. Tweedale, all of Cheboygan.——Alpena County Medical Society has been reorganized with the following officers: president, Dr. James D. Dunlop; vice-president, Dr. Edward E. McKnight, and secretary-treasurer, Dr. Clarence M. Williams, all of Alpena.

MISSOURI

Personal.—Dr. Norman F. Terry has been elected president; Dr. Theodore A. Coffelt, vice-president; Dr. Robert L. Pipkin, secretary, and Dr. Lee Cox, treasurer, of the Springfield Hospital Association.——Dr. and Mrs. Joseph J. Carter, Weston, have gone abroad.

Changes in State Hospital Staff.—The board of managers of State Hospital No. 4, Farmington, has elected Drs. William S. Hutton, Fornfelt, and John A. Tiller, Bloomfield, assistant

physicians at the institute, vice Drs. Henry Lloyd and F. S. Weber.——Dr. James A. Waterman, head physician of the State Penitentiary, Jefferson City, has been elected superintendent of State Hospital No. 4, Farmington, vice Dr. Robert S. McGee, Green City, appointed assistant superintendent of State Hospital No. 1, Fulton.

Medical Staff Assigned.—At the regular meeting of the board of control of Levering Hospital, Hannibal, the following assignments for the year were made: physician in charge, Dr. John N. Baskett; attending surgeon, Dr. Thomas Chowning; consulting surgeons, Drs. Henry L. Banks and Charles E. Paxon; attending physician, Dr. Elmer E. Waldo; consulting physicians, Drs. John J. Farrell and W. Cloyd Guss; attending gynecologist, Dr. William H. Hayes; consulting gynecologists, Drs. Isaac E. Hill and Richard M. Winn; attending obstetrician and pediatrist, Dr. John J. Farrell; consulting obstetricians and pediatrists, Drs. William H. Hays and Thomas C. Procter; attending genito-urinary surgeon, Dr. Richard Schmidt; consulting genito-urinary surgeons, Drs. James F. Cooper and W. Cloyd Guss; pathologist, Dr. Mary S. Ross; attending oculist and aurist, Dr. James S. Howell; consulting oculists and aurists, Drs. Edward T. Hornback and Ulysses S. Smith, and roentgenologist, Dr. Isaac E. Hill.

St. Louis

Medical Reserve Corps Organized.—The officers of the Medical Reserve Corps, U. S. Army, located in St. Louis, met July 12, and organized the St. Louis Society, Medical Reserve Corps U. S. Army, adopted a constitution and by-laws and elected the following officers: president, Lieut. Harvey G. Mudd; vice-president, Lieut. Walter C. G. Kirchner; secretary-treasurer, Lieut. William H. Luedde, and executive committee, Lieuts. William A. Hardaway, Amand N. Ravold and Frederick C. E. Kuhlmann. At a special meeting of the society held at Jefferson Barracks, July 12, Lieut.-Col. Jefferson R. Kean, M.C., U. S. Army, outlined the history of the development of the Medical Reserve Corps, and detailed its purposes and functions.

MONTANA

Personal.—Dr. W. A. Halbush, Cut Bank, has been appointed local surgeon of the Great Northern System.——Dr. John McIntyre, Butte, was seriously injured recently by being thrown from his carriage.——Dr. Albert F. Longeway, Great Falls, has been elected vice-president of the University Club. ——Dr. J. Rudolph E. Sievers and family, Butte, are spending the summer abroad.

NEBRASKA

Personal.—Dr. William D. Gibbon, Lorton, was seriously injured in an automobile accident, July 13.——Dr. Leo A. Dermody, Omaha, was operated on for appendicitis, July 25.

New Officers for Board of Secretaries.—The Board of Secretaries of the State Board of Health has reorganized with the following officers: president, Dr. Herschell B. Cummins, Seward; vice-president, Dr. E. Arthur Carr, Lincoln; secretary, Dr. Clifford P. Fall, Beatrice, and treasurer, Dr. Porter F. Dodson, Wilber.

Quarterly Meeting of County Society.—At the third quarterly county meeting of the Dawson County Medical Society, held at Cozad, June 30, the address of the evening was given by Dr. Harry M. McClanahan, Omaha, who spoke on "Summer Diseases of Children." The next meeting will be held at Cozad in October.

State Sanatorium Purchased.—The Grothan Sanatorium, Kearney, known as Elmwood Place, has been purchased by the state as a tuberculosis sanatorium for $24,000. The remainder of the appropriation of $40,000 will be used for the necessary remodeling and improvements. An appropriation of $10,000 has also been made by the legislature for maintenance.

NEW YORK

Gift to Hospital.—Mrs. Harriet M. Biglow has given $1,000 to be added to the endowment fund of the Corning Hospital. This institution now has an endowment fund of $37,000.

Food Commission Appointed.—Governor Dix has appointed a New York Food Investigating Committee. In addition to a number of lay members Dr. Eugene Porter, State Health Commissioner; R. A. Pierson, State Commissioner of Agriculture; Dean Bailey, Director of the State College of Agriculture, and Whitman H. Jordan, Director of the New York State Agricultural Experiment Station, have been appointed to serve. All members are to serve without compensation and are authorized to inquire into the purity, prices, production, distribution and consumption of foodstuffs and farm and dairy products and to recommend remedial legislation next year.

New York City

Personal.—Dr. Hubbard W. Mitchell and Dr. and Mrs. Livingston Farrand have sailed for Europe.——Dr. George Gibier Rambaud was seriously injured in an automobile accident near Poughkeepsie on August 2.

Danger from Cholera Passed.—There were on August 5 only three cases of cholera remaining on Swinburne Island, while two weeks earlier there were eighteen cases. During this time fifteen patients have been discharged as cured. The Health Officer of the Port, Dr. Doty, expresses the belief that the danger of a cholera invasion is at a minimum.

Fewest Deaths in Thirteen Years.—The mortality for the week ended July 29 is the lowest, for a corresponding week, reported since 1898, being 14.10 per 1,000 and is 23 per cent. less than for the corresponding week of last year. The decrease occurred in all age groups. The deaths of infants numbered 375 as compared with 575 for the corresponding week of last year.

NORTH DAKOTA

Begin Work on Sanatorium.—The board of trustees of the state tuberculosis sanatorium, to be located at Dunseith, met July 19 and decided on plans for the building which is to cost $25,000, and which will be erected as soon as practicable. The building will be 42 by 50 feet, and two stories and a basement in height. In addition a cottage to cost about $3,000 will be erected, containing outdoor sleeping-rooms for patients.

New Examining Board.—The governor has named the following physicians as members of the State Board of Medical Examiners, following the recommendations of the North Dakota State Medical Association: Drs. Henry G. Woutat, Grand Forks; Arthur G. Patterson, Lisbon, and Francis R. Smyth, Bismarck, for one year; Drs. Albert W. Skelsey, Fargo; Francis Peake, Jamestown, and George M. Williamson, Grand Forks, for two years; and Drs. Paul Sorkness, Fargo; Alexander J. McCannel, Minot, and John E. Countryman, Grafton, for three years.

OKLAHOMA

Personal.—Dr. John W. Riley has resigned from the health board of Oklahoma City.——The office of Dr. Daniel David Roberts, Nashville, was burned in a fire which caused a loss of $15,000 to that village recently.——Drs. Richard Stephen McCabe and George Hunter, Oklahoma City, have been appointed assistant city physicians of Oklahoma City, vice Drs. Joseph T. Martin and Robert Elmore Looney.——Dr. Albert R. Hughes, Indiahoma, has given up the practice of medicine to return to his former profession of the law.

OREGON

New Nurses' Home.—The site for the nurses' home at the Multnomah Hospital, Portland, has been selected. The building will be on ground owned by the county and will cost $13,340.

Personal.—The ranch home of Dr. George Calvin Skinner, Hamilton, O., at Hood River, Ore., was burned to the ground, July 27.——Drs. Andrew C. Smith, Rupert J. Chipman and George Burnside Story have been reappointed members of the Portland Board of Health and Dr. Glenn W. Wheeler has been retained as health officer.

PENNSYLVANIA

Anti-Spitting Law Observed.—State Health Commissioner Dixon notes with satisfaction that in the stations of the state the railway platforms are perfectly clean and free from spit, showing that the railway companies are enforcing the state anti-spitting law and the people also are observing it.

Personal.—Dr. James M. Torrence, Indiana, is reported to be seriously ill with appendicitis.——Dr. Evan J. Groom, Bristol, was thrown from his carriage in a collision with an automobile and was seriously injured.——Dr. David Nathan, Norriston, had a narrow escape from drowning in Perkiomen Lake, July 26.

Governor Appoints Trustees.—Governor Tener has appointed the following as trustees of the State Institution for the Feeble-Minded of Eastern Pennsylvania: Dr. Joseph Kerr Weaver, Norristown; John B. Lober, Philadelphia; John P. Crozier, Upland; Henry F. Walton, Philadelphia, and Dr. U. G. Gifford, London Grove.

Honors to State Board President.—The honorary degree of Doctor of Science was conferred on Dr. Henry Beates, Jr., Philadelphia, for many years president of the board of medical examiners of the state, by Washington and Jefferson College. ——At a meeting of the board of medical examiners, held July 28, at Atlantic City, N. J., resolutions were adopted setting

forth the regret with which the board noted the resignation of Dr. Beates, wishing him a long and honorable career and hoping that he may be able to see his high ideals fully realized.

Philadelphia

Bequest.—The will of the late Phoebe Woodward devises that $5,000 be placed in trust and the income paid to a sister during her life and at her death, the principal be given to the Episcopal Hospital for the endowment of a free bed in the name of David and Phoebe Woodward.

Typhoid Outbreak Not Alarming.—Although forty-six cases of typhoid fever were reported to the Health Bureau during the week ended August 5, Dr. Andrew A. Cairns, Philadelphia, chief medical inspector, says that there is no cause for alarm as an increased number of cases is always looked for at this time of year when vacationists return to the city.

Reports on Sane Fourth.—At the meeting of the Citizen's Committee held at City Hall on July 27, it was announced that, as a result of the movement for a Sane Fourth, there were but four cases of tetanus from firecracker injuries this year, none of which was fatal. A resolution was unanimously adopted for a permanent citizens' committee to arrange Independence Day celebrations.

Personal.—The following physicians have sailed for Europe: Drs. John Norman Henry, Frederick P. Henry, John McLernon, Albert C. Sautter, James M. Anders, L. Webster Fox, George E. de Schweinitz and Irwin A. Fries.——Governor Tener has appointed Dr. Edgar F. Smith, Provost of the University of Pennsylvania, representative of Pennsylvania at the International Congress of Applied Chemistry in Washington and New York, September, 1912.

Local Druggists' Association Want Wiley.—At the meeting of the Philadelphia Association of Retail Druggists, held on August 4, a resolution was adopted urging President Taft to retain Dr. Harvey W. Wiley, chief chemist of the United States Department of Agriculture, in his present position. During the meeting, Christopher Kock said that another crusade would be started in this city against the sale of opium, morphin and cocain. The State Pharmaceutical Board has been collecting evidence against the alleged sale of the drugs and is following out clues.

RHODE ISLAND

Bequest.—By the will of the late Oliver Henry Arnold, Providence, Brown University received a bequest of $85,000.

Medicolegal Society Organized.—The Medicolegal Society of Rhode Island, composed of lawyers, physicians, coroners and others interested in medical jurisprudence, was organized in Providence, July 20. Judge Benjamin M. Grim, Cranston, was elected president, Hon. Daniel S. Latham, vice-president, and Dr. Carle R. Doten, secretary-treasurer, all of Providence.

District Meeting.—At the annual meeting of the Woonsocket District Medical Society the following officers were elected: President, Dr. William Francis Barry, Woonsocket; vice-president, Dr. Joseph T. Roswell, Woonsocket; secretary, Dr. Joseph Edgar Tanguay, Woonsocket; treasurer, Dr. George R. Smith, Woonsocket; councilor, Dr. John J. Baxter, Woonsocket; delegate to the state society, Dr. James A. King, and censors, Drs. Edgar F. Hamlin, Slatersville, and Joseph H. Boucher and Edward N. Kingsbury, Woonsocket.

SOUTH CAROLINA

Secretaries Elect.—At the annual meeting of the Association of Secretaries of County Medical Societies, Dr. Claude Clinkscales Gambrell, Abbeville, was elected president, and Dr. L. Rosa H. Gantt, Spartanburg, secretary.

Alumni Election.—At the reunion of the graduates of the class of 1901 of the Medical College of the State of South Carolina, Dr. L. Elliott Bull, Cheraw, was elected president; Dr. David M. Michaut, Dillon, vice-president, and Dr. George McFarland Mood, Charleston, secretary-treasurer.

Personal.—Dr. Robert T. Jennings, McCormick, has succeeded Dr. Frank W. P. Butler, resigned, as physician to the state penitentiary, Columbia.——Dr. W. T. Breeland, Allendale, suffered painful injury by being knocked down by his horse, July 23.——Dr. James Adam Hayne, Greenville, has succeeded Dr. Charles Frederick Williams, Columbia, resigned, as State Health Officer and secretary of the State Board of Health.——Dr. Williams has started for Europe.——Drs. Walter Cheyne and Charles P. Osteen have been appointed members of the Sumter Committee on Health and Sanitation.

SOUTH DAKOTA

State Board Elects.—The state medical examining board held its annual meeting at Mitchell last month and elected the following officers: Dr. Frank S. Howe, Deadwood, president; Joseph Mark Walsh, Fort Pierre, vice-president, and Dr. Leslie Grant Hill, Watertown, secretary. The next meeting of the board will be held at Huron in December.

Personal.—Dr. James E. Miller, governor and chief physician of the Battle Mountain Sanitarium, Hot Springs, has been appointed inspector-general of the National Homes for Disabled Volunteer Soldiers and also of the various state homes.——Dr. E. E. Carle, Roseland, has been operated on recently for injuries sustained in an automobile accident and is believed to be out of danger.

TENNESSEE

Society Reorganized.—The Henderson County Medical Society was reorganized recently at Lexington and the following officers were elected: president, Dr. William B. Keeton, Scott's Hill; vice-presidents, Drs. S. T. Parker, Lexington, and Elmer E. Waller, Juno, and secretary-treasurer, Dr. William F. Huntsman, Juno.

Milk Dispensary Opened.—The Memphis Free Milk Dispensary for Babies was opened August 1, at 215 Market Street. Free milk is supplied to babies whose parents are unable to pay for it and to families who are able to pay the milk will be sold practically at cost. The milk used by the dispensary comes from a farm which agrees to furnish milk certified to be standard.

Personal.—Dr. William Krauss, Memphis, has been appointed by the State Board of Health to investigate pellagra in West Tennessee and Dr. J. C. Brooks, Chattanooga, has been placed in charge of this work in East Tennessee.——Dr. Harry D. Miller has succeeded Dr. Daniel Trigg as city physician of Johnson City.——A portrait of Dr. Henry Berlin, Chattanooga, has been presented by a number of women of that city to the Erlanger Hospital.

TEXAS

No Welcome for Lepers.—Dr. Ralph Steiner, Austin, state health officer, has made a supplemental report to the members of the board chosen to select a site for a state home for lepers. He finds that it is impossible to secure a site on account of the opposition and objection everywhere made, and suggests that the thirty lepers in the state might be cared for by the federal government in one of its four or five institutions.

Personal.—Dr. Isaac P. Poyner, Palestine, has been seriously ill as the result of an overdose of headache powder.——Dr. Christopher C. Rutherford, McDade, was seriously injured by a fall, at the home of his son in Yoakum, July 16.——Dr. John N. Howell, Cisco, suffered a loss of $3,000 by a fire which destroyed his library and surgical instruments, July 7.——Dr. Edward H. Schwob, Yoakum, fractured two ribs and sustained other injuries in a street-car accident in New York City, recently.——A gold-headed cane was presented to Dr. James D. Osborne, Cleburne, retiring president of the State Board of Medical Examiners by his colleagues.——Dr. Marvin B. Grace has been appointed health officer of Seguin.

GENERAL NEWS

Personal.—Dr. Charles E. Ruth, formerly of Keokuk, Iowa, who has been living for three years in Porto Rico on account of his wife's health, announces that she has so far recovered that they will return about October 1 and he will resume practice in town.——The degree of master of arts was recently conferred on Captain Henry D. Thomason, M. C., United States Army, by the Pennsylvania Military College.

Sioux Valley Physicians Hold Meeting.—At the annual meeting of the Sioux Valley Medical Association, held at Sioux Falls, S. Dak., July 20, the following officers were elected: president, Dr. John Edward Garver, Sioux City, Iowa; vice-presidents, Drs. Gilbert Geoffrey Cottam, Sioux Falls, S. Dak., and Charles O. Wright, Luverne, Minn.; secretary, Dr. George Stillman Browning, Sioux City, Iowa, and censors, Drs. Gilbert Geoffrey Cottam, Sioux Falls, S. Dak., Philip Benedict McLaughlin, Sioux City, Iowa, Arthur E. Cook, Randolph, Neb., and Alfred E. Spalding, Luverne, Minn. The next meeting will be held in Sioux City, Iowa.

Meeting of Atlantic Coast Surgeons.—At the seventh annual meeting of the Atlantic Coast Line Surgeons, held in Norfolk, Va., July 25 and 26, more strenuous sanitary rules for railroad trains and railroad stations were recommended to the

railway companies on the lines suggested by Surgeon Charles P. Wertenbaker, U. S. P. H. and M.-H. Service, in his paper on "Railroad Sanitation." The following officers were elected: President, Dr. James M. Parrott, Kinston, N. C.; vice-presidents, Drs. John Elliott Boyd, Jacksonville, Fla., and Micollins N. Stow, Jesup, Ga.; secretary-treasurer, Dr. Charles P. Aimer, Charleston, S. C. (reelected), and executive committee, Drs. George G. Thomas, Wilmington, N. C., Southgate Leigh, Norfolk, Va., E. L. Cox, Jacksonville, N. C., William S. Lynch, Scranton, S. C., John M. Spence, Camilla, Ga., and George Abner Hammond, Dothan, Ala.

CANADA

Fire in Insane Hospital.—Eight lives were lost in a fire which partly destroyed one of the main buildings of the Hamilton Hospital for Criminal Insane, near Hamilton, August 1, 1911.

Hospital for Fire Sufferers.—At a joint meeting in Toronto, of the relief committee, appointed to distribute funds to fire sufferers in the Porcupine fire-swept district, it was decided to use $10,000 of the fund to establish a hospital at Cochrane, Ont.

Mural Tablets Unveiled.—Two mural tablets were recently unveiled in the entrance hall of the Western Hospital, Montreal; the one in memory of Dr. Francis Wayland Campbell, dean and professor of medicine in Bishop's College and a member of the staff of Western Hospital in 1876 until his death in 1905, and the other commemorating Dr. William Henry Drummond, the Habitant poet, who was a pupil and fellow professor of Dr. Campbell, and an enthusiastic supporter of the hospital.

Opening of Sanatorium.—The Laurentian Sanatorium for the treatment and control of tuberculosis which was informally opened at Ste. Agathe, Que., in May, was officially opened June 15, in the presence of a large gathering of physicians and others from all parts of the Dominion and the United States. The building as it stands has cost $150,000, of which Mr. D. Lorne McGibbon contributed $50,000 and other members of the Laurentian Society $25,000. Dr. Roddick Byer is medical superintendent of the institution.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, July 22, 1911.

Spiritual Healing

In January, 1909, a subcommittee of the British Medical Association consisting of general practitioners, physicians, neurologists and alienists was appointed to investigate the subject of "spiritual healing." Previously, a meeting of clergy and laymen had asked the Bishop of London to form a central church council in the diocese of London for the consideration of questions connected with healing by spiritual means. This led to the conclusion that the subject was of sufficient importance for consideration by the profession. After a study of some literature on the subject the subcommittee had some difficulty in deciding on a clear definition of the meaning attached to the term "spiritual healing" by those who used it. Accordingly a letter was sent to a number of well-known ecclesiastics, including the Archbishop of Canterbury, the Bishop of London, the Dean of Westminster, the Rev. Percy Dearmer (author of "Body and Soul") and others interested in the subject. These gentlemen were asked to assist in clearing up the confusion which existed in connection with the use of the terms "spiritual healing," "faith healing" and "psychic healing." Many long and detailed replies showing a great wish to assist the subcommittee were received. Nevertheless, it cannot be said that these eminent persons threw much light on the subject. They experienced great difficulty in defining the difference between these terms, and none of their utterances added anything to what is generally known. They largely consisted of commonplaces on the influence of mind on body. The subcommittee found great difficulty in obtaining cases for investigation, as those who had written on the subject would not put them in touch with patients treated. The only cases seen were provided by the Emmanuel Society. Ten patients were examined and the diagnosis verified by reference to the records of previous medical advisers, but opportunities for subsequent examination were given in only three cases. It was found that the *modus operandi* in spiritual healing consists in the laying on of hands and praying by the "healer," in surroundings of a more or less impressive character. After carefully considering the various definitions submitted, the subcommittee found that there is no difference in kind between "spiritual healing," "faith healing," "mental healing" and "psychic healing." All these forms seemed to depend for their effect on mental suggestion. There was no evidence to bear out the contention of "spiritual healers" that they had a special "gift of healing." Although there was abundant evidence of the efficacy of suggestion in many disorders, there was none of any authenticated cure of organic disease. The subcommittee concludes that the benefits of suggestion can be obtained from physicians, whose training enables them to distinguish the conditions amenable to it and that, for the protection of the public, it is best left in their hands and they deprecate any formal cooperation between physicians and the clergy.

Fatal Anthrax Contracted by a Laboratory Attendant

A man, aged 24, laboratory attendant at University College Hospital, complained of pains in his head but continued at work. On the third day he came to Dr. Thiele, lecturer on bacteriology at the college and in charge of the vaccine department, and showed him a little pimple on the right side of the neck. Dr. Thiele thought it was a scratch but next morning he noticed that it had become enlarged to the size of a shilling and seemed to show signs of anthrax which was proved to be the case on bacteriological examination. The whole of the lesion was immediately removed, the temperature fell, and in a day or two the patient seemed to be out of danger, but the temperature again rose and in spite of serum treatment he died on the tenth day. The source of infection must have been some tube which he had touched in cleaning up after the students, who were working on anthrax bacilli. Probably he then scratched his neck. Dr. Thiele could not say how this happened, unless some of the students had carelessly allowed some of the organisms to get on the outside of the tube and failed to report it, so that the tube might at once have been put in the steam sterilizer.

A Safe and Efficient Antirabic Vaccine

Lieutenant-Colonel Sir David Semple of the Indian medical service has established the fact that an efficient antirabic vaccine can be made from the dead virus. In a recent research recorded in the Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India he has shown that animals can be as highly immunized against rabies with a dead as with a living virus. He found that the rabies virus was easily destroyed by heat; a temperature of 50 C. killed a 5 per cent. dilution of fixed virus in fifteen minutes. An 8 per cent. dilution in normal saline was killed by 1 per cent. phenol (carbolic acid) at 37 C. in twenty-four hours. When this fluid is diluted with equal volume of normal saline it becomes a 4 per cent. virus in 0.5 per cent. phenol—a very suitable strength for antirabic treatment and containing sufficient phenol to prevent subsequent contamination. This proved efficient in the protection of dogs, rabbits and monkeys against inoculation of the virus. In some cases the protection was not complete, but in these the animals developed the disease later than controls. In addition to safety, this method possesses the great advantage of convenience over that of using the living virus such as is employed in the Pasteur institutes. This cannot be sent to a distance without the risk of impairing its efficiency. On the other hand, the dead virus can be sent to any place where it is required.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, July 21, 1911.

An Interesting Discussion on Spinal Anesthesia

Dr. Forgue, professor of clinical surgery at the Faculté de médecine de Montpellier, recently made a report to the Académie de médecine de Paris on novocain spinal anesthesia. On the basis of 320 patients observed, Dr. Forgue concluded that the procedure deserved to be substituted for general anesthesia in many subdiaphragmatic operations. Strong objections were raised. On July 18, several members of the Académie de médecine spoke on the disadvantages of spinal anesthesia. Professor Reclus, especially, who has been the great promoter of local anesthesia in France, remarked that out of Dr. Forgue's 320 cases two-thirds of the patients might have been operated on after local anesthesia. Moreover, 320 cases formed a very small series on which to base conclusions of such a matter. At least 1,000 or 1,500 cases should be observed, for if Dr. Forgue had had one death in one of his late spinal anesthesias, his statistics would thereby become most unfavorable. It is known that there is hardly one death in two or three thousand cases from general anesthesia. No reliance, therefore, can be placed on a series of less than that

number. As for local anesthesia, in 12,000 operations performed by Dr. Reclus and his pupils, there has not been one death. Dr. Reclus asks, moreover, what the effect is on the spinal cord of the patient submitted to spinal anesthesia. Here is an organ, protected by Nature with infinite precautions, into which the most violent poisons are nonchalantly injected. There is all the more reason to protest against this encroachment of spinal on the field of local anesthesia because, with the use of recently discovered chemical substances, such as novocain, epinephrin, local anesthesia now permits operations which formerly were not possible, especially the radical cure of hernias. It may be used even in major operations where general anesthesia is contra-indicated.

Dr. Schwartz, *agrégé* professor at the Faculté de médecine de Paris, was of the same opinion as Dr. Reclus. Spinal anesthesia appeared to him, at best, a method to be used exceptionally. Schwartz had had confidence in it but he renounced it entirely and forever on observing the complications to which it gave rise. His last case was that of a woman who had large lacerations of the perineum with rectocele and cystocele, and who could not be placed under the influence of ether. The case, otherwise, seemed ideal for spinal anesthesia, which Schwartz accordingly used. He injected 0.06 gm. of stovain and 0.002 gm. of strychnin sulphate as low as possible in the inferior extremity of the lumbar region. Operation was performed with extraordinary facility but after the following day paralysis of the legs and the sphincters appeared and four or five days afterward a terrible decubitus acutus against which all measures failed.

The observation of Reclus and Schwartz were supported by Dr. Delorme, medical inspector-general of the army.

Erroneous Information in Regard to the Academy of Medicine

In the *New York Medical Journal*, July 1, 1911, I was surprised to read that "Dr. Léon Labbé, one of the most distinguished surgeons in France, is president of the academy." This information is rather belated, for Dr. Labbé was president of the Académie de medecine in 1909. In 1910, Dr. Dieulafoy was president and this year Professor Lannelongue has passed from the vice-presidency to the presidency, as I mentioned in a previous letter (THE JOURNAL, Jan. 14, 1911, p. 130). It is the rule that the vice-president of one year becomes the president for the following year and the presidency lasts only one year.

Personal

The Académie des Sciences has just elected Professor J. Bernstein of Halle-sur-Saale, as correspondent.

Obligatory Report of Acute Anterior Poliomyelitis (Infantile Paralysis)

On July 11, Dr. Netter, *agrégé* professor at the Faculté de médecine de Paris, read before the Académie de médecine a paper concluding in favor of the addition of acute anterior poliomyelitis to the list of diseases which must be reported. Report should be made, not only on typical cases, but on doubtful cases. This should be done at all times even outside of epidemic periods. Not only convalescents but their brothers and sisters should be excluded from school for three weeks. Objects capable of being soiled by the secretions and excretions of the patient ought to be disinfected in the course of the disease and in the convalescence. The room should be disinfected after recovery. The academy voted in favor of these conclusions.

A Discussion in the Senate on Classical Studies and Medical Instruction

In one of the last sessions of the senate, during the discussion of the budget of the ministry of public instruction, there was an interesting discussion in regard to the utility of classical studies in which several physicians took part. Dr. Léon Labbé especially insisted on the necessity of classical culture to enable one to undertake the study of sciences, medical science in particular. He called to witness the great German chemist Liebig, through whose influence the first "realista" schools (*Realschulen*) were founded in Germany, who later, taught by experience, wrote: "The pupils of the *Realschulen* who come into my laboratory are, during the first year, superior to those of the gymnasia; the second year they are equal to them; the third year they become inferior." Dr. Labbé likewise recalled the incessant demand of the Medical Council of London that more and more stress should be laid on the humanities. He also cited Professor His of Berlin, who devoted his inaugural address of clinical medicine to establish the absolute necessity of a general culture of high order for undertaking medical studies to advantage.

Professor Debierre, who was recently elected senator, likewise considers Latin and Greek as necessary for a physician or lawyer as for a literary man or a man of science. He cites his personal experience, which goes back more than twenty years. As professor of anatomy at the Faculté de médecine de Lille, he took part in the scientific and professional education of several generations of studies under the old and under the new regime. He has been able to observe that medical students having the so-called modern baccalaureate (without Greek or Latin) were less prepared for scientific culture than pupils educated under the old regime. At present, declares Professor Debierre, some pupils of our medical schools do not understand scientific language because they have not learned Greek and Latin.

Rôle of Mercury and Some of Its Salts in Certain Cancers

In one of the last sessions of the Académie des sciences, Dr. Odier called attention to the fact that certain cancer patients who have previously undergone mercurial treatment may retain mercury in their systems for several years. Observations extending over a long period had shown him that nothing was more dangerous for cancer patients than to have them follow antisyphilitic treatment. In view of the irritation produced by mercury in the epithelial cells, Odier asks if mercury and its salts administered copiously and in increasing measure in modern therapeutics do not play an important rôle in the causation of cancer.

International Honor to Sir Patrick Manson

The considerable services rendered by Sir Patrick Manson to the study of tropical diseases are well known. The creation of schools and institutions for the study of these diseases are due to him. A committee has been formed to give an international testimonial in his honor. A subscription has been opened to offer Sir Patrick Manson a gold medal bearing his portrait. This medal will be about 7 cm. high by 5 cm. wide and will be executed by Dr. Paul Richer, member of the Académie des beaux-arts and of the Académie de médecine de Paris and professor of anatomy at the Ecole des beaux-arts.

May Syphilis be Considered an Industrial Accident?

The Paris courts have been called on to decide whether syphilis contracted in the exercise of his profession by a mechanician-dentist constitutes an industrial accident. A mechanician-dentist working for a surgeon-dentist was wounded in the little finger; the patient being syphilitic, the mechanician contracted syphilis. On the ground that his infirmity was permanent and that he had experienced a reduction of 80 per cent. in his professional practice, the mechanician-dentist demanded from his employer an annual income of 2,912 francs. The courts did not accept his point of view on the ground that the profession of dentist was a liberal profession and that the dentist employer was not subject to the law with regard to industrial accidents. In the liberal professions, syphilis cannot, therefore, constitute an industrial accident.

The Chair of the Physiology of Speech in the Sorbonne

M. Marge, a doctor in medicine and science, who has been for eight years giving, at the Faculté des sciences de Paris, a course of biologic physics applied to phonation and audition, has just been appointed to give a course on the physiology of speech. This new chair was connected with the institute of phonetics which will soon be opened.

Danger of Arsenic in Vinegrowing

For some months all vineyards have been devastated by a terrible parasite, the cochylis, against which arsenate of lead has been used. Dr. Cazeneuve, senator of the department of the Rhône, has just addressed to the minister of the interior a letter calling attention to the danger to public health in the unrestrained sale of arsenical compounds, which is contrary to the law. Against the decision unanimously taken by the Académie de médecine and by the Council on Public Hygiene and Salubrity of the Seine, lead arsenate has been sold by thousands of kilos in all the vinegrowing regions, just at the time when the usage of white lead was put under the ban of law. The government has even sent aid under the form of arsenates. Dramatic and sensational accidents, such as were to have been expected, have occurred in several departments, without counting those more numerous cases which escape observation owing to their chronic and insidious character, but which are even more serious and dangerous. According to information furnished Dr. Cazeneuve by competent persons, lead arsenate and the arsenical salts are;

moreover, altogether inefficacious against the cochylis. Therefore, Dr. Cazeneuve has just asked the minister to put an end to these dangerous practices which are strictly forbidden in Germany and other countries. It is said that in the south, growers spray not the leaves alone but the bunch of grapes itself with arsenic.

Insufficient Supply of Guinea-Pigs at the Pasteur Institute

The laboratories of the Pasteur Institute use each month more than 2,500 guinea-pigs. There was founded several years ago, therefore, an establishment at Garches, near Paris, for the breeding of these animals, but it produces only about 20,000 guinea-pigs a year, so that the institute is obliged to secure elsewhere about 10,000 guinea-pigs. Since these little animals are very expensive to raise, farmers do not find it profitable to breed them. The price of guinea-pigs varies between 1 fr. 25 and 1 fr. 50 (25 to 30 cents), and they are not easy to procure at that price. Mice and rats used in experimental medicine also have gone up in price. One franc is now paid for a mouse and 1 fr. 50 for a rat. For the maintenance and the purchase of experimental animals the Pasteur Institute spends more than $80,000 (400,000 francs) a year.

The Expenses of the Public Charities

The last report of M. Mirman, director of public charities and hygiene, shows that the number of beneficiaries of medical charity is constantly increasing. The number, including those treated at home and at the hospitals, has increased from 615,871 in 1895 to 996,539 in 1909, a continuous and almost regular increase of 27,000 a year. Expenses have increased still more. From about $739,200 (3,696,000 francs) in 1895, it amounted in 1909 to about $3,483,400 (18,416,000 francs). The number of beneficiaries under the law of 1905 in regard to assistance to the aged, infirm and incurable has not ceased to increase, but is not increasing so rapidly. On March 31, 1911, there were 577,816 beneficiaries under the law.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, July 21, 1911.

Personal

Professor Sahli of Bern has declined the call as successor of Moritz at Strasburg and Professor Wenckebach of Groningen, Holland, has been called. The latter some time ago declined a call to Marburg. His present call to Strasburg is due to the fact that he had been a candidate for the position at Marburg. There seems to be no reason why German investigators of equal worth should not have been given due consideration.

The Medical Profession and the Krankenkassen

As was to be expected, the managers of the Krankenkassen have quickly taken a position with reference to the resolutions adopted at the Aerztetag at Stuttgart. At the session of the Krankenkassen last week the decision was taken to prosecute the fight against the demands of the physicians and especially to work against the free choice of physicians. The president of the local Leipsic Krankenkasse, the largest Krankenkasse of Germany, with great courage announced that in his society, an agreement had been reached on the basis of a free choice of physicians which satisfied the medical interests, and insured to the management their rights. He was hooted down by the majority of the members of the congress. In all the speeches there appeared the desire to regard physicians as workmen and subordinates of the management of the insurance society. According to this expression of the Krankenkassen the continuance of conflict between the two bodies must be expected even under the new insurance law.

Medical Supervision of Educational Institutions

Medical supervision of educational institutions has lately been essentially increased. Every institution heretofore had to be investigated as a rule within a period of five years by the district physician. A new regulation of the department of the interior and of the minister of instruction requires that certain educational institutions shall be subjected to a yearly visit. This provision refers to such institutions as receive wards, orphans, deserted and lost children as well as all orphanages and rescue homes and a part of the institutions for the protection of children. The district presidents and the police are required to furnish the district physician with a list of the institutions that are to be visited annually. The inspectors of schools of a district are to furnish corresponding information with regard to the schools for small children, institutions for the protection of small children, kindergartens and the like.

Civil Responsibility of an Asylum Physician

A decision that will not fail to awaken great interest among the managers of insane asylums has been rendered by the court of a Berlin suburb. A Berlin attorney who was confined against his will for several weeks in an asylum in this district and was released as the result of his own efforts and that of his attorney against the advice of the physician brought suit for damages against all the persons who participated in what he claimed was an illegal imprisonment. The court decided that the demand of the complainant against the director of the institution was justified on the ground that the physician in order to maintain the imprisonment of the lawyer had given a certificate that did not correspond with the facts. Naturally the director of the sanatorium appealed and a second trial will be held in the upper court. If the accused is also convicted here the suits which the directors of insane asylums have heretofore experienced in considerable numbers will be unpleasantly and expensively increased. We do not believe that this will happen.

Prize Offer for Essay on Racial Hygiene

The Berlin Society for Racial Hygiene (Berliner Gesellschaft für Rassenhygiene) has offered a prize of $150 (600 marks) for an essay on the following question: Does material and social advancement involve any danger to families from the standpoint of racial hygiene? As an indication of the scope of the subject the following interesting remarks are made:

"The German people have experienced an incomparable advancement in the last decades. This advance has been accompanied by a remarkable increase of the population which has helped to spread the economic influence and establish the political and military position of the nation. During this period the movement of the population of European nations in the direction of reduction of the birth-rate began, and Germany, especially in its large cities, was rapidly drawn into the current. Especially among the well-to-do and educated classes of the cities, but also among the better situated portion of the working people, the sinking of the birth-rate is already very noticeable. This leads to the extinction of desirable families and thus to the loss of valuable inherited talents and faculties from the life of our race. While men were striving for economic advancement, they forgot the true values of life and have 'overcropped' themselves. On the other hand, it is noticeable that cripples, invalids and degenerates are not only supported by charity, as humanity demands, but the way is smoothed for them to marry and reproduce their kind, while worthy people are prevented from propagation by the harder struggle for existence. Meanwhile the army of the incapable is feeding at the expense of the whole body of society in a constantly more threatening manner, demanding a continually growing sacrifice of money and labor for its care. Thus we are threatened with a diminution, not only in the quantity, but also in the quality of the coming generations.

"We are dealing here with a transmitted heritage of physical and mental constitution which it is our chief duty to transmit unimpaired and if possible improved to our posterity. This general theme is of the greatest importance to the nation and the race and should be cleared up by special research among families. For the family is the unit, the social cell in which, in thousands and millions of individual processes, changes take place which often are only very imperfectly represented in the large figures of statistics. The extent and cause of this phenomenon has not yet been investigated with desirable exactness. Especially should it be determined to what extent the economic and social environment, the changed position in life, produce conditions which are unconsciously active in affecting the fertility and character of families.

"It is left to the discretion of the authors to determine whether they will treat the subject from a physiologic, genealogic, statistical or other point of view. But the work must unconditionally add new utilizable material which will satisfy scientific criticism and must be presented in a generally intelligible manner."—The jury of award consists of Professor von Gruber, Professor Martius, Dr. Ploetz and the president of the Berlin Society for Racial Hygiene.

German Spas

The largest part—194 out of 312—of the German sea and mineral bathing-places are in Prussia. Germany possesses 216 mineral spas of which 102 are in Prussia; there are in all Germany eighty-eight watering places on the East Sea and twenty-eight on the North Sea. In the period from 1870 to

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1885 the number of Prussian spas amounted to 202 with eighteen exporting mineral waters; from 1886 to 1900 the spas had risen to 260 and the exporting springs to twenty.

The increase in number of annual visitors to the watering places is a decisive evidence of their prosperity. There has been a steady increase in the number of patrons at all the springs in the period from 1870 to 1900. The number of visitors at the baths rose in this time from 99,136 to 585,460, an increase of 486,324, or more than 350 per cent. The most marked increase was from 1885 to 1900 in the period of great economic prosperity. The number of visitors at mineral springs rose from 168,639 to 345,999, that of the patrons of the seaside resorts from 118,751 to 239,403. The increase was really greater than appears, for since 1895 transients have not been included in the count as before. The number of the patrons of all the bathing places of Prussia rose in this five-year period from 365,472 to 585,460, or about 60 per cent. The great majority of the patrons are naturally Prussians and other Germans, yet the number of foreigners has increased very greatly in the last three decades; Russia furnished the largest number of foreigners, in 1870, 2,024; in 1900, 10,477. While in 1870 America furnished only 401 persons to the contingent of visitors, in 1900 it was 2,611. The number of baths taken was in 1900 about 200,000 more in the mineral spas than at the seaside resorts. There has been quite a remarkable increase in the export of mineral water; it rose from 4,588,768 casks in 1870 to 69,350,208 casks in 1900.

So far as the expense of baths and traveling and other expenses of the patrons is concerned, it may be assumed that a patient will spend on the average for a course of mineral baths $100 (400 marks), for a stay at one of the North Sea resorts $52.50 (250 marks), or on the East Sea $50 (200 marks). On the basis of this uncertain estimate we may calculate that the 374,555 patients in 1905 at the Prussian mineral springs must have spent $34,955,500 (139,822,000 marks), at the North Sea resorts 124,937 visitors would have contributed $18,117,140 (72,468,560 marks), while at the East Sea resorts $10,279,800 (41,119,200 marks) would have been spent by 205,596 patients, altogether $63,352,440 (253,409,760 marks). The export of Prussian medicinal and table waters brought in altogether $3,990,400 (15,961,600 marks). The entire financial returns for Prussia in 1905 thus amounted to nearly $67,500,000 (269,371,360 marks). By a similar calculation for the entire German watering place industry we obtain for 1905 the complete sum of $94,284,433 (377,137,733 marks). [These spas are under the control of the state, which also receives the profits.]

Reduction of the Birth-Rate in the Large Cities

According to official statistics, the two-child system seems well established in Berlin. In 1880 a third of the births were fourth to sixth children, while in 1906 these constituted only a fifth of all births. Of late years the first and second born are relatively much more numerous. In 1906 not only was the actual number of all births much reduced, but the relation between these figures had changed materially in favor of the first born and second born which together constituted 60 per cent. of all births. The families in which there was only one child had increased by 32 per cent. In regard to the reduction in the entire birth-rate the statistics show that in 1900 there were in the month of January 25.56 births per 1,000 of the average population of Berlin, but in the same month of 1905 there were only 23.48 births, and in 1909 only 22.37. The smallest number of births is in October: in October, 1900, 23.37; in October, 1906, 21.09, and in October, 1909, 20.12. In the other large cities, such as Breslau, Hamburg, Hanover and Essen the reduction in the birth-rate has not been so large.

To Prevent Communication of Disease in Telephone Exchanges

For the prevention of the transmission of disease among telephone operators the following regulations have been adopted: In exchanges and public telephone offices the transmitter and the receiver shall be cleansed daily by wiping with a soft piece of leather moistened with a weak (about 3 per cent.) solution of phenol. In exchanges doing a large business the use of the same head received and transmitter (*Brust-Mikrophon*) by several operators or telephone assistants is to be discontinued. Each operator and each telephone assistant must be furnished with a separate head telephone receiver for her personal use. Telephone operators who are affected with contagious diseases must be excluded from this service until the danger of communicating the disease to their fellow workers is past. In doubtful cases the question of contagiousness must be settled by the attending physician. The instrument last used by the sick operator must be thoroughly cleansed without delay.

Marriages

PASSED ASSISTANT SURGEON FREDERICK GUSTAVUS ARKEN, U. S. Navy, to Miss Frieda Charlotte Schultz of Seattle, Wash., in St. Louis, July 22.

GEORGE G. CHITTENDEN, M.D., Twisp, Wash., to Miss C. A. Ross of Beloit, Wis., at Wenatchee, Wash., July 6.

THOMAS CLARK CHALMERS, M.D., New York City, to Miss Elizabeth Ducat of Downers Grove, Ill., August 1.

LIEUT. HENRY CLAY COBURN, Jr., M.C., U. S. Army, to Miss Elma Matilda Sitley, at San Francisco, July 18.

LOLITA DAY BEW, M.D., San Francisco, and Mr. William Joseph Fenton, at San Rafael, Cal., June 10.

WILLIAM JAMES SHAW, M.D., Rome, Ga., to Miss Mabel Frances Norris of Riverside, Ill., August 2.

FREDERICK HENNING SCHLUTER, M.D., to Miss Mildred Elinor Burr, both of Brooklyn, N. Y., July 29.

JOHN J. BURKE, M.D., Green Bay, Wis., to Mrs. Goldie M. Browne of San Francisco, Cal., July 19.

VALENTINE B. FISCHER, M.D., to Miss Helen Mae Waltemeyer, both of Boulder, Colo., July 25.

BRYANT ROBERT SIMPSON, M.D., Adams, Neb., to Miss Lulu Culver of Milford, Neb., July 20.

WAITMAN F. ZINN, M.D., Baltimore, to Miss Katherine A. Burgess, at Baltimore, July 26.

CLINTON JAMES MILLER, M.D., to Miss Zona Estella McNutt, both of Ord, Neb., July 26.

SAMUEL B. GRIMES, M.D., to Miss Bessie Teare, both of Cincinnati, July 19.

JOHN LEWIS NEWMAN, M.D., to Miss Emma R. Steph, both of Chicago, July 3.

Deaths

William G. Adair, M.D. Western Pennsylvania Medical College, Pittsburg, 1895; a member of the Medical Society of the State of Pennsylvania; for several years a school director of Allegheny and for three terms a member of the common councils of Allegheny and Pittsburg; for fourteen years surgeon to St. John's Hospital; died in the Presbyterian Hospital, Pittsburg, July 28, from septicemia, due to an operation wound, aged 43.

Francis Augustine Howe, M.D. Harvard Medical School, 1854; a member of the Massachusetts Medical Society, and for two years president of the Essex North District Medical Society; said to have been the oldest practitioner of the state; a member of the consulting board of the Danvers State Hospital; died at his home in Newburyport, July 28, aged 84.

Howard Morrison Church, M.D. McGill University, Montreal, 1896; of Montreal; demonstrator of anatomy in his alma mater; a member of the Canadian Medical Association and Montreal Medical Society; surgeon-major of the second (Montreal) regiment of Canadian Garrison Artillery; died in the Montreal General Hospital, July 31.

Orvir E. Osell, Medical-Chirurgical College of Kansas City, Mo., 1903; formerly assistant to the chair of clinical ophthalmology in the Medical Department of the University of Kansas; physician to the El Tigre Mining Company, near Douglas, Ariz.; died suddenly at his home, July 25, aged 43.

George C. Smith, M.D. Jefferson Medical College, 1876; a member of the Medical Society of the State of New York; secretary of the Delaware County Medical Society and health officer of Delhi; a veteran of the Civil War; died at his home in Delhi, July 25, from nephritis, aged 71.

Oscar Asa Tolle Haruff, M.D. University of Colorado, Boulder, 1903; of Pueblo; a member of the Colorado State Medical Society; formerly a member of the city council; died July 26, from injuries due to a collision between his automobile and a railway train, near Pinon, Colo., aged 36.

Adelmann Brookins Manley, M.D. Rush Medical College, 1883; of Shopiere; a member of the Wisconsin State Medical Society, who was operated on at the Beloit Hospital, July 23, for appendicitis and intestinal obstruction; died in that institution, July 27, aged 61.

John Alfred Warren, M.D. Eclectic Medical Institute, Cincinnati, 1873; a member of the Illinois State Medical Society; a member of the local board of pension examining surgeons of Greenville, and a member of the local board of health; died at his home, July 29, aged 75.

David Harmon Lovejoy, University of Michigan, Ann Arbor, 1865 (license, Philadelphia County, Pa., 1894); a clergyman and for fifteen years chaplain at the Episcopal Hospital, Philadelphia; died at his home in Roslyn, Pa., July 26, from heart disease, aged 72.

Levi N. Smith, M.D. Kentucky School of Medicine, Louisville, 1881 (license, Kentucky, twenty years practice, 1894); formerly of Western, Neb.; for thirty years a practitioner of Clinton, Ky.; died at his home in that place, July 1, from typhoid fever, aged 64.

Franz B. P. Becker-Laurich, M.D. Long Island College Hospital, Brooklyn, 1893; for several years house surgeon to the Smith Infirmary, Staten Island, N. Y.; died at his home in Greenpoint, Long Island, July 27, from endocarditis, aged 51.

Carl W. Kuhn, M.D. New York University, New York City, 1874; for forty years a practitioner of Manhattan, but since 1895 a resident of Brooklyn; died in the German Hospital in that city, January 4, from chronic nephritis, aged 76.

James M. Fowler (license, Illinois, years of practice, 1878); a veteran of the Civil War; at one time superintendent of schools of Williamson County and a member of the legislature; died at his home in Crab Orchard, July 27, aged 65.

William Burd Evans, M.D. Maryland Medical College, Baltimore, 1902; a member of the Philadelphia County Medical Society; died suddenly in the Woman's Homeopathic Hospital, Philadelphia, July 28, from uremia, aged 33.

Annin E. Murphy, M.D. St. Louis College of Physicians and Surgeons, 1896; formerly physician in the United States Indian Service at the Lemhi Agency, Ida.; was shot and killed in his office at Salmon, Ida., July 28, aged 61.

Harry H. Hughes, M.D. Tulane University, New Orleans, 1892; for several years district surgeon at Jackson, Miss. for the Illinois Central Railroad; died at his home in Jackson, July 21, from anthrax infection, aged 42.

Ashael Ebeneser Darling, M.D. Harvard Medical School, 1872; a member of the American Medical Association; died at his home in East Killingly, Conn., July 30, from carcinoma of the stomach, aged 66.

Jeremiah Linden Curtis, M.D. Dartmouth Medical School, Hanover, N. H., 1888; assistant surgeon U. S. V. during the Spanish-American War; died at his home in East Dixmont, Me., July 19, aged 54.

Joseph Pierre Lavalaye, M.D. Yale University, New Haven, Conn., 1903; of New Haven; died at the Polyclinic Hospital, New York City, July 21, a short time after an operation for appendicitis, aged 38.

John F. Carey, M.D. Jefferson Medical College, 1867; a member of the Wyoming State Medical Society; formerly of Sussex County, Del.; died at his home in Cheyenne, Wyo., July 27, aged 69.

David James L. Lackie, M.D. Detroit College of Medicine, 1905; a member of the American Medical Association; died at his home in Grind Stone City, Mich., August 1, from pernicious anemia, aged 33.

Joseph Elias Hayne, M.D., 1895; a colored physician, writer, preacher and ethnologist; a veteran of the Civil War; died at his home in Brooklyn, N. Y., January 14, from lobar pneumonia, aged 62.

Francis C. Clark, M.D. Starling Medical College, Columbus, O., 1898; a member of the Nebraska State Medical Association; died at his home in Craig, July 19, from disease of the brain, aged 38.

Thomas Benton Keplinger, M.D. University of Iowa, Iowa City, 1895; of Conway, Ia.; died at the home of his wife's father, near Sharpsburg, Ia., July 13, from tuberculosis, aged 49.

William E. La Dow, M.D. Western Reserve University, Cleveland, 1891; for several years a practitioner of Warrensville, O.; died at his home in Harlem, O., July 22, aged 43.

Lewis Clarence Sampson, M.D. Ensworth Medical College, St. Joseph, Mo., 1900; died at his apartment in St. Joseph, July 23, from cirrhosis of the liver, aged 37.

William L. Castleberry, M.D. Medical College of Georgia, Augusta, 1871; died in his apartments in Lincoln, Ala., July 14, from heart disease.

E. W. Johnson, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1876; died at his home in Tulip, Mo., July 7, from diabetes.

Charles Ambrook, M.D. University of Michigan, Ann Arbor, 1870; died suddenly at his home in Boulder, Colo., July 23, aged 71.

Ida Charlotte Barnes, M.D. Womans' Medical College of Pennsylvania, Philadelphia, 1890; a member of the American Medical Association and of the staff of Christ's Hospital, Topeka, Kan.; died at her home in that city, July 21, aged 50.

John Millard (license Tennessee, 1889); for forty years a practitioner of Sullivan County; died at his home near Bluff City, July 20, aged 83.

George B. Jones, M.D. University of Buffalo, N. Y., 1869; died at his home in Jamestown, N. Y., July 25, aged 68.

R. J. Howard (license, Kentucky, thirty-two years' practice), 1893); died at his home in Pryorsburg, July 21, aged 60.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

PHARMACEUTICAL SPECIALTIES

In European countries, particularly Germany, there are discovered each year hundreds of new substances which are proposed for use in medicine. Little scientific work of this kind seems to be done in this country. American pharmaceutical houses are apparently content to devote their energies to the devising of "pharmaceutical specialties." These usually are mere mixtures of well-known medicaments so put up as to be attractive both to the eye and the palate—especially the latter—and provided with names that are either meaningless or, more often, therapeutically suggestive.

The representative of a foreign firm in this country was discussing the relation of the pharmacist to the physician and of the manufacturer to both. While his viewpoint naturally was biased, yet much that he said was true. For instance: "Pharmaceutical concerns should also stick more to the one drug or active principle idea, and not encourage so many combinations. Leave these for the doctor to prescribe and the retail druggist to prepare."

On the multiplicity of pharmaceutical specialties to be found in this country, he said: "One firm puts on the market some decided improvement; then, the next thing, your larger pharmaceutical firms, instead of putting their chemists to work to improve what you have, tell them to get busy and try to make an imitation; the outcome is that within a year you have some dozen preparations of the same kind, but under different names."

Of course, it is a fact that most of the new drugs—usually definite chemical compounds—which come from abroad, are found in the long run to constitute no real advance. On the other hand, a product of substantial value is occasionally produced and foreign industries may be credited with a share in medical progress. The credit accruing to our pharmaceutical manufacturers is discouragingly small; in fact, it is no exaggeration to say that the average American "pharmaceutical specialty" is not only of no benefit to medicine or pharmacy, but is a distinct handicap and detriment to both professions.

LIQUID NITROUS OXID

Report of the Council on Pharmacy and Chemistry

The referee of the Council appointed to report on the composition of liquid nitrous oxid as found on the market and to make recommendations as to its inclusion with New and Nonofficial Remedies, submitted the following report:

The Section on Stomatology, at the 1909 session of the American Medical Association, having recommended the inclusion of Liquid Nitrous Oxid with the U. S. Pharmacopeia, the Council voted to describe this product with New and Nonofficial Remedies until such Pharmacopeial recognition had been secured. This action having been decided on, it was necessary to provide a standard of purity for this substance. Correspondence with those who make liquid nitrous oxid, as well as with those who use it, brought out very little information as to what degree of purity should be required. It therefore became necessary to examine the product as it was found on the market.

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Prof. Warren R. Smith of Lewis Institute, Chicago, kindly offered to cooperate with the Council and to make an examination of liquid nitrous oxid. The referee herewith transmits the very thorough report regarding the composition of commercial liquid nitrous oxid which has been made by Professor Smith in collaboration with Edwin D. Leman. The referee recommends that the Council express its appreciation for the work, and that it request publication of the report in THE JOURNAL. The referee further recommends that the description of liquid nitrous oxid submitted herewith be adopted for inclusion with New and Nonofficial Remedies.

This report was adopted by the Council, and in accordance therewith the examination of Smith and Leman is published below, and the description of liquid nitrous oxid appears with New and Nonofficial Remedies on another page of this issue of THE JOURNAL. The increasing use of nitrous oxid gas, not only as the sole anesthetic in minor operations, but as a preliminary to ether or chloroform anesthesia, makes the adoption of a standard of purity for this substance highly desirable.

W. A. PUCKNER, Secretary.

The Purity of Nitrous Oxid

PROF. WARREN R. SMITH AND EDWIN D. LEMAN

Nitrous oxid is commonly sold in cylinders containing 25 ounces of the liquid, which is approximately equal to 100 gallons of the gas under ordinary conditions. We have analyzed four cylinders of this material from different makers. Three of these samples were purchased in the open market, and the other was supplied to us through the courtesy of the dealer. We find that all these samples contain nitrogen as the principal impurity, that two of them contain oxygen and that one contains oxygen and carbon dioxid.

All samples were tested qualitatively by passing from 2 to 4 liters of the gas through solutions of barium hydroxid, litmus, silver nitrate, potassium iodid and starch and Nessler's reagent, with negative results in every case except the one which showed carbon dioxid. These results proved that the samples were free from acids, chlorin, the higher oxids of nitrogen, ammonia and various other less probable impurities. The findings in the quantitative analysis are given below.

These results cannot be taken as representing the contents of the cylinders with the same degree of exactness than can be obtained in the analysis of other materials of different nature, because, aside from the ordinary difficulties in the analysis of a gaseous mixture, the problem is complicated by the fact that the impurities (oxygen and nitrogen) are apparently held in solution in the liquid nitrous oxid and as the gas is drawn off, they tend to escape from the solution at a more rapid rate, proportionally, than the nitrous oxid. The result is that the first portions of gas drawn from the cylinders are much more impure than the later portions. From a product containing originally 96.1 per cent. of nitrous oxid, samples varying as widely as from 87.2 per cent. to 98.5 per cent. have been obtained. The greater part of the nitrogen escapes with the first half of the gas, but the oxygen and a small part of the nitrogen persist throughout.

This possibility of variation in the composition of the gas as drawn from the cylinders should be known and reckoned with in the administration of the gas. It seems, also, to make a difference whether the sample of gas drawn for analysis is that which has been standing for some time in contact with the liquid, or is that which comes from the liquid after the gas in the upper part of the cylinder has been drawn off. This variation complicates the analysis, but is hardly enough to be of significance in the administration of the gas. The results given below are either averages of those obtained from samples drawn at intervals during the escape of the entire quantity of gas from the cylinder or of material drawn directly from the liquid itself, methods which we have proved to give results practically identical.

Percentage of	No. 1.*	No. 2.*	No. 3.*	No. 4.*
Nitrous oxid.....	95.4	93.4	95.8	96.1
Oxygen	0.0	1.4	1.1	00.1
Nitrogen	4.6	5.2	3.1	3.5
Carbon dioxid.....	0.0	0.0	0.0	0.3

* 1 = Johnson & Lund; 2 = Ohio Chemical and Mfg. Co.; 3 = The Lennox Chemical Co.; 4 = S. S. White Dental Mfg. Co.

Carbon dioxid was determined by absorption with alkali, oxygen with alkaline pyrogallol, nitrous oxid by explosion with hydrogen and nitrogen by difference

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TYPHOID VACCINE AND THE WIDAL TEST

To the Editor:—In Major Russell's report to Congress, "The Control of Typhoid in the Army by Vaccination," he states that following the use of typhoid vaccines the blood of the individual treated shows the Widal reaction in very great dilutions. Is this a good test to determine whether the vaccination has "taken" or not? If the blood does not show a positive Widal about four days after the administration of the last dose of vaccine does this mean that immunization did not take place? This has been my experience in using Mulford's vaccine. A. MAVERICK, San Antonio, Texas.

ANSWER.—In Circular 4, issued by the surgeon-general, giving directions for the administration of the typhoid prophylactic, the following statement is made: "The Widal reaction is always positive after typhoid prophylaxis; it appears in about ten days after the first dose and remains positive for six months to a year. This must be considered in diagnosing typhoid in immunized persons; they give a positive Widal regardless of the nature of the illness, and the reaction is consequently of no assistance in making a diagnosis. If typhoid is suspected the diagnosis should be confirmed by blood-culture." The strength of the Widal is increased after the second and third dose and it does not begin to fall off until about ten days after the last dose. If the blood-serum does not give a positive Widal after the administration of the prophylactic the inference is plain that the person has not been immunized and the failure in such a case is most probably due to the use of an inert vaccine.

AN AMBIGUOUS STRYCHNIN PRESCRIPTION

To the Editor:—Will you kindly tell me how to put up this combination?

Strychninæ sulphatis	gr. 1
Hydrastinæ hydrochloridi	gr. x
Solutionis acidi borici saturatæ gtts..	cccc

P. J. B. L.

ANSWER.—Inasmuch as the size of a "drop" is variable (depending on the nature of the orifice from which the liquid falls) the prescription is ambiguous. Although under ordinary conditions a "drop" measures usually less than a minim; the prescription was put up by our chemists in the proportion of strychnin sulphate, 1 grain; hydrastin hydrochlorid, 10 grains, and saturated solution of boric acid, 400 minims. It was also put up by using 200 minims of the boric acid solution for the same quantities of the alkaloidal salts. In both cases the salts dissolved readily in the boric acid solution to form a permanently clear solution.

NAUHEIM AND SCHOTT TREATMENT

To the Editor:—1. Please give me the names and addresses of several institutions in this country where the Nauheim and Schott baths are given. 2. Please tell me where I can find some literature regarding the Nauheim and Schott treatment for cardiac hypertrophy.

T. J. WALTHALL, San Antonio, Texas.

ANSWER.—1. Except as may be obtained from advertisements, we have no data from which to select a list of such institutions. 2. The following may be consulted:

Thorne: Nauheim Treatment of Heart Diseases, Pub. Chicago Medical Book Co., Honore and Congress Streets, Chicago. Price, $1.

Thorne: The Schott Method, P. Blakiston's Son & Co., 1012 Walnut St., Philadelphia. Price, $2.

Garson: Remedial Gymnastics for Heart Affections, P. B. Hoeber, 69 East Fifty-Ninth Street, New York City. Price, $2.

Franze, P. C.: Success and Failure in Nauheim Cures, *Medical Record*, May 9, 1908.

Wilson, W. L.: Treatment of Chronic Diseases of the Heart by Carbonated Mineral Baths and Auxiliary Exercises, *Jour. Mich. State Med. Soc.*, August, 1908; abstr. in THE JOURNAL, Aug. 29, 1908, p. 784.

Bishop, L. F.: Baths and Exercises in the Treatment of Abnormal Tension of the Heart and Blood-Vessels, *New York State Jour. Med.*, June, 1909; abstr. in THE JOURNAL, Feb. 20, 1909, p. 654.

Bishop, L. F.: Nauheim Methods in Management of Cardiac Disease, *Medical Record*, March 25, 1911.

TREATMENT OF GOITER IN YOUNG GIRLS

To the Editor:—Some time ago I read an article in THE JOURNAL on the treatment of simple goiter or enlargement of the thyroid gland in young girls. Please give me reference to this article.

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ANSWER.—Probably our correspondent refers to an answer published in this department Oct. 8, 1910, p. 1306. The patient referred to by the inquirer at that time was a young girl, and the answer is appropriate to the question of our correspondent.

QUINZOIN HAIR TONIC

To the Editor:—Can you tell me the approximate composition of "Quinzoin," a so-called hair tonic made by H. S. Peterson & Co., 212 Kinzie Street, Chicago? C. P. FORDYCE, Falls City, Neb.

ANSWER.—The report of an examination of Quinzoin is contained in the *Bulletin of the Kansas State Board of Health*, May, 1910, as follows: "Sample was found to contain 50.4 per cent. of bicarbonate of soda, small quantity of quinin sulphate and approximately 49 per cent. of coarsely ground quassia." Other "prescription fakes" put out by this firm were discussed in THE JOURNAL, Dec. 11, 1909, page 2020.

The Public Service

Medical Department, U. S. Army

Changes for the week ended July 29, 1911.

Register, E. C., lieut., left Camp Douglas, Ariz., with troops for Fort McPherson.

Keefer, Frank R., lieut.-col., left West Point, N. Y., on thirty days' leave.

Rand, I. W., major, left Fort Hancock, N. J., on thirty days' leave of absence.

Hess, Louis T., major, as inspector and instructor, Sanitary Troops, Pennsylvania troops, Indiana, Indiana County, from July 22 to 29, 1911.

Darby, Taylor E., first lieut., is ordered for temporary duty at Fort McPherson, Ga., and after expiration of leave granted, to return to Fort Sam Houston, Tex., until time to depart for the Philippine Islands.

Tigner, Edwin P., dental surgeon, is granted leave of absence for one month effective about Aug. 1, 1911.

Maguire, Daniel F., first lieut., is ordered from Fort. D. A. Russell, Wyo., to Fort Barrancas, Fla., for duty.

Mount, James R., first lieut., is relieved from further temporary duty at Medical Supply Depot, St. Louis, Mo., and will return to Fort Sheridan, Ill.

Kefauver, Lloyd, A., first lieut., is ordered to proceed from Ft. D. A. Russell, Wyo., to Fort Riley, Kan., for duty.

Brown, Polk D., M.R.C., so much of paragraph 14, Special Orders No. 10, Jan. 13, 1911, War Department, as relates to Lieut. P. D. Brown, M.R.C., is revoked, and by direction of the President, he is honorably discharged from the service of the United States, his services being no longer required, after expiration of leave of absence.

Mount, James R., first lieut., is relieved from duty at Fort Riley, Kan., and will return to proper station, Fort Sheridan, Ill.

Poust, Luther R., M.R.C., relieved from temporary duty at Fort Hamilton, N. Y., and will proceed to Fort DuPont, Del., for temporary duty.

Skelton, Robert, M.R.C., relieved from temporary duty with troops at New York State Rifle Range, and will proceed via Fort Jay, N. Y., to his proper station, Fort Adams, R. I.

Chambers, William H., dental surgeon, reported for duty at Army General Hospital, San Francisco, Cal.

Michie, H. C., Jr., lieut., reported for duty at Fort Missoula, Mont.

Denton, William, lieut., reported for duty at Fort Sam Houston, Tex., from Maneuver Division.

Flynn, Thomas J., lieut., reports for duty at Fort Snelling, Minn., from duty at San Antonio, Tex.

Kefauver, L. A., lieut., reported for duty at Fort Riley, Kan., from San Antonio, Tex.

French, W. H., lieut., reported for duty at Fort Hancock, N. J., from San Antonio, Tex.

Mason, George L., dental surgeon, left Fort Snelling, en route to Fort Leavenworth, Kan., for temporary duty.

Creighton, S. S., lieut., reported for duty at Walter Reed General Hospital, D. C., from San Antonio, Tex.

Clayton, Geo. R., M.R.C., left Fort Sheridan, Ill., with troops for duty at encampment of Organized Militia, Chicago, Ill.

Mudd, Leo C., lieut., reported for duty at Washington Barracks, D. C., from San Antonio, Tex.

Jackson, Thomas W., M.R.C., is granted leave of absence for two months on surgeon's certificate of disability.

Reynolds, Charles R., major, is granted leave of absence for one month and fifteen days, effective Aug. 13, 1911.

Davis, Arthur O., first lieut., is relieved from duty, Maneuver Division, San Antonio, Tex., and will return to proper station, Fort Oglethorpe, Ga., for temporary duty, then after expiration of leave, about September 5, will proceed to Manila, P. I.

Walkup, Joseph O., first lieut., is relieved from duty with the Maneuver Division, San Antonio, Tex., and will proceed to Fort Bayard, New Mexico, for duty.

Divins, George G., lieut., reports arrival at Fort D. A. Russell, Wyo., with Field Hospital and Ambulance Company No. 1 from San Antonio, Tex.

Long, Charles J., dental surgeon, returned to Fort Andrews, Mass., from temporary duty at Fort Ethan Allen, Vt.

Farrow, E. J., M.R.C., left Fort Morgan, Ala., en route to Jackson Barracks, La., for temporary duty.

Poust, Luther R., M.R.C., is relieved from temporary duty at Fort Hamilton, N. Y., and will proceed to Fort Du Pont, Del., for temporary duty, vice Major Hartnett, absent on temporary duty.

Skelton, Robert, M.R.C., is relieved from duty with troops at New York State Rifle Range, and July 20 will proceed via Fort Jay, N. Y., to his proper station, Fort Andrews, R. I.

Ford, Joseph H., major, is assigned as inspector and instructor Organized Militia, New Jersey, at Sea Girt, August 5-12, of Sanitary Troops; and on completion, return to station.

Rutherford, Henry H., major, is detailed for the service assigned Major Hess, as inspector and instructor, Organized Militia, Indiana, Pennsylvania, July 22-29. On completion, return to station.

Brown, Polk D., M.R.C., is granted an extension of twenty days to the leave of absence granted him in Special Order 142, June 22, Department of Texas.

Ford, Clyde S., major, granted leave of absence for one month about Aug. 22, 1911.

Reddy, John R., lieut., reports for duty at Fort Jay, N. Y.

Siner, Joseph L., lieut., reports for duty, Fort Ethan Allen, Vt., from San Antonio, Tex.

Crabtree, George H., major, left Culebra, Canal Zone, en route to the United States, on leave of absence.

Bradley, John R., M.R.C., relieved from duty, Fort Leavenworth, Kan., and from present duty, Department of Texas, and from San Francisco, will proceed to P. I. Sept. 5, 1911.

Campbell, George F., M.R.C., ordered to his home when not needed, Department of Texas, and is relieved from active duty, M.R.C., on expiration of two months' leave of absence herewith granted, effective on arrival home.

Bernheim, Julien R., dental surgeon, is ordered to attend meeting of National Dental Association, at Cleveland, Ohio, July 25-28, as representative of the Dental Corps of the Army.

Manly, Clarence J., major, is relieved from duty with Maneuver Division, San Antonio, Texas, and will return to proper station, Fort Douglas, Utah.

Burnside, F. R., lieut., reported for duty at Fort Riley, Kan., from San Antonio, Tex.

Holland, J. H., lieut., reported for duty at Fort Douglas, Utah, from San Antonio, Tex.

Maguire, Daniel F., lieut., reported for duty at Fort Barrancas, Fla., from San Antonio, Texas.

Mason, George L., dental surgeon, is ordered from Fort Snelling, Minn., to Fort Leavenworth, Kan., for temporary duty, 13th Infantry, and to return to station on completion of this duty.

Ardelette, John T., first lieut., is detailed inspector instructor of the Organized Militia, Texas, at Camp Mabry, Austin, Texas, Aug. 7 to 16, 1911.

Pinkston, Omar W., captain, granted three months' leave of absence, when he can be spared, with one month extension if desired.

Fauntleroy, Powell C., major, is ordered to Camp Perry, Ohio, to duty as surgeon at National Matches.

Appel, Daniel M., colonel, is granted leave of absence for one month, with permission to apply for extension of one month.

Harmon, Daniel W., first lieut., after his arrival at Seattle, Wash., and on the expiration of leave of absence granted him, will proceed to Fort Oglethorpe, Ga., for duty.

Metcalf, Raymond F., captain, ordered to report Sept. 4, 1911, to Lieut.-Col. James D. Glennan, Medical Corps, President of the Examining Board, at the General Hospital, San Francisco, Cal., for examination for promotion.

Mason, George L., dental surgeon, reports for temporary duty at Fort Leavenworth, Kan.

Gunckel, George I., dental surgeon, reports for temporary duty at Key West Barracks, Fla.

Beery, H. R., lieut., left San Antonio, Tex., en route to station Fort Benjamin Harrison, Ind.; reported at for duty July 25, 1911.

Darby, T. E., lieut., left San Antonio, Tex., en route to Fort McPherson, Ga.

Eckels, Lauren S., lieut., reports for duty at Ft. McKinley, Me., from duty at San Antonio, Tex.

Robinson, James L., lieut., reports for duty at Ft. Wayne, Mich., from San Antonio, Tex.

McBrayer, Charles E., lieut., reports for duty at Fort Howard, Md., from San Antonio, Tex.

Trinder, John H., M.R.C., left Ft. Jay, N. Y., en route to Ft. Hunt, Va., for temporary duty.

U. S. Public Health and Marine-Hospital Service

Changes for the week ended Aug. 2, 1911. + + +

White, J. H., surgeon, granted twenty days' leave of absence, without pay, from July 20, 1911.

Gardner, C. H., surgeon, granted one month's leave of absence from Aug. 5, 1911.

Cumming, H. S., surgeon, directed to proceed to Cape Charles City to examine keepers and surfmen of the life-saving service.

Vogel, C. W., P. A. surgeon, granted seven days' leave of absence from Aug. 1, 1911.

Pettyjohn, Joseph, P. A. surgeon, granted one month's leave of absence from July 15, 1911, on account of sickness.

Preble, Paul, asst. surgeon, granted three days' leave of absence from July 24, 1911.

Kolb, L., A. A. surgeon, granted two days' leave of absence, July 5 and July 15, 1911, under paragraph 191, Service Regulations.

Altree, G. H., A. A. surgeon, granted fifteen days' leave of absence from Aug. 3, 1911.

Barclay, James, A. A. surgeon, granted fifteen days' extension of annual leave on account of sickness, from July 5, 1911.

Carter, P. L., A. A. surgeon, granted seven days' leave of absence from July 17, 1911, under paragraph 210, Service Regulations.

Fahey, E. W., A. A. surgeon, granted twenty-one days' leave of absence from July 29, 1911.

Robinson, H. D., A. A. surgeon, granted seven days' leave of absence from July 20, 1911.

Stevenson, J. W., A. A. surgeon, granted sixteen days' leave of absence from July 24, 1911, with pay, and forty-five days, without pay, from Aug. 11, 1911.

Stuart, A. F., A. A. surgeon, granted thirty days' leave of absence from July 25, 1911.

Tappan, J. W., A. A. surgeon, granted twenty days' leave of absence from Aug. 1, 1911.

Townsend, F., A. A. surgeon, granted fourteen days' leave of absence from July 25, 1911.

Wilson, J. G., A. A. surgeon, granted fourteen days' leave of absence from Aug. 5, 1911.

Galm, H., pharmacist, granted four days' leave of absence from July 24, 1911.

La Grange, J. V., pharmacist, granted thirty days' leave of absence from Aug. 14, 1911.

Spangler, L. C., pharmacist, granted two and one-half days' leave of absence from July 27, 1911

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Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

A Newspaper Editor on Medical Ethics

The growing interest of newspapers in medical matters is but one of the many indications of the increasing sociological importance of the medical profession and its work. In previous years the press has been wont to regard questions of medical ethics and professional procedure as matters which concerned physicians alone and which were of no special interest to newspapers or their readers. The bearing of professional ethics and conduct on society and the public has become apparent and is causing the more advanced and far-sighted newspaper men of the country to give increasing attention to such questions. Particularly significant in this respect is a recent editorial in the Dallas (Texas) *Morning News* which devotes a full column to a discussion of the report of the committee appointed by the Medical Society of Erie County, N. Y., on division of fees. The comments of the editor are so pertinent and clear-sighted as to entitle them to reproduction in full.

The Medical Society of Erie County, N. Y., of which county Buffalo is the chief city, appointed a committee a few months ago to investigate a charge that surgeons were in the habit of dividing their fees with physicians who brought cases to them. The committee, in its report, sustained the charge; that is, it found that the practice was not only wide-spread in that city, but that it was steadily increasing. It volunteered the further statement, based on inquiries that it had made, that this practice of secret and illicit partnership between surgeons and physicians was more or less general all over the country. Of course the Erie County Medical Association put itself on record as being sternly against this practice, as medical associations would everywhere, since perhaps in every community in the country the reputable largely outnumber the disreputable doctors. It pointed out that, aside from all considerations of professional ethics, the evil of this practice, from the standpoint of the public, is that since the least capable surgeons are the ones who will be most liberal in dividing fees with those physicians who bring them cases, it must result in promoting butchery at the expense of surgery. Another consequence must be, of course, to increase the number of unnecessary surgical operations. One naturally puts large faith in the sincerity of his physician; it is a help the patient gives him in his effort to cure, and when a physician gives advice that, on the face of it, is so unselfish, since he resigns his patient to another, the patient is doubly persuaded that the operation is necessary, even if there be no need of it whatever.

The committee of the Erie County Medical Association made several recommendations as to methods of suppressing this practice. We shall concern ourselves with only one of them, the one which, though slowest in its working, is fundamental and must be the surest. It recommended, if we may express it so, that the doctor mills be made to grind slower. It is hardly, however, an original suggestion, for there has long been a pretty general recognition of the fact that the output of doctors, like the output of lawyers, is annually vastly larger than there is any need of. Some think that it is twice as great as it ought to be. Both professions are everywhere overcrowded. It might be thought that that is the misfortune of those professions only, and that the public has no concern in it; but a moment's reflection will convince any one that this evil of dividing fees, like most if not all other evils that have crept into both these professions, is due fundamentally to the increasing difficulty of making a living in them. Where it is a desperate struggle to earn a bare and precarious existence, human nature succumbs easily to the temptation to stoop to practices that are repugnant even to the sentiments of those who are guilty of them. If there is a large and increasing number of unscrupulous physicians and a larger and more rapidly increasing number of conscienceless lawyers, the fundamental and chief cause of it is that there are more doctors and lawyers than society has any legitimate need of.

If the evil is to be checked at its source, the medical and legal schools must prescribe a longer and more difficult climb for those who aspire to a place in these professions, and the test of proficiency now imposed on those who ask license to practice must be made considerably more rigorous. Than that of medicine there is, of course, no profession that men have a deeper concern in, and unless it is that of journalism, there is none that exercises a greater power for good and evil over society than the legal profession. Surely we have ample reason to require very severe tests of those who are ambitious to exercise the power of these professions. The requirements vary widely in the several states and colleges. The motto of some colleges seems to be "Quickness and Dispatch," and some of them have almost reached the point of making you a doctor or a lawyer "while you wait." Youths seem to be taken in to-day as raw, crude material and sent forth to-morrow as finished product with a "God help you" from the faculty, whereas the larger part of the invocation ought to be made in behalf of society. Perhaps it would be well everywhere to exact a higher degree of academic proficiency as a prerequisite to professional study, and then, of course, a more thorough mastery of the professional studies.

The criticisms of the *News* are well taken. It is perfectly true that the essential factor in the present situation is the existence of too many medical schools and the production each year of too many physicians, or at least of too many half-trained physicians. This fundamental fact has been recognized for years, as the work of the Council on Medical Education will show. The original object for which the Association was organized was the elevation of the standard of medical education and, ultimately, the elevation of the profession thereby. The Association has always labored with this end in view and, during the last seven years, through its Council on Medical Education, has been working definitely and effectively for this purpose.

The *News*, however, overlooks or at least fails to mention the important fact that, no matter how vigorous or intelligent may be the efforts of the medical profession to suppress inefficient medical schools or to prevent uneducated and unqualified men from entering the practice of medicine, its labors will be wholly in vain without the support and hearty cooperation of the public. The regulation of medical colleges and the restriction of the practice of medicine to those who are fit are, ultimately, problems which the public must solve, since they depend entirely on the enactment and enforcement of suitable laws in the various states. But how is the public to be benefited if, in spite of the efforts of the Association and the profession, irresponsible and incompetent persons are allowed to organize and conduct medical schools under the laws of the states without any restriction, or with merely nominal restrictions which are practically ineffective? Yet this is possible in many states to-day. How will the public be benefited if, whenever the Association and the profession succeed in raising the standard for admission to the practice of medicine, cults, sects and unscientific pretenders with practically no knowledge of disease are, under the laws of the states, granted an equal right to practice medicine, on requirements and qualifications far below those required of medical men? How will the public be protected, even if stringent laws for the regulation of the practice of medicine are rigidly enforced, if at the same time osteopaths, chiropractics, neuropaths, vitapaths and all the other herds of "isms" are recognized by law and are given the right to treat the sick, on complying with qualifications of their own making? Yet this is what is occurring in many states. No sooner is a standard for admission to the practice of medicine established than its provisions are at once assailed by a multitude who desire the privileges of physicians, without acquiring the necessary training and knowledge. And when the medical profession protests against such nullification of medical practice acts and insists that there should be but a single standard for admission to the practice of medicine it is denounced as a "medical trust" and as endeavoring to restrict the right to practice medicine to its own members. The qualifications for a license to treat the sick are established by the state and not by physicians. What can we think of a state that recognizes two standards for the same privilege? Yet there is no more justification for the state recognizing two or more standards for physicians than there would be for its recognizing two or more standards for admission to the bar

The division of fees on the part of some physicians (fortunately they are few), the introduction of commercialism into the medical profession and the use of unworthy methods to secure practice are, as the *News* truly says, but incidental phenomena resulting from the admission into the medical profession of unfit and poorly trained men. The duty of restricting the practice of medicine to those who are properly trained and qualified is a duty of the public and not of the medical profession alone. It is essentially a sociological and not a professional question. With the rapid development of modern sanitary methods, it is becoming a most important social problem and one which it is the duty of every citizen, and especially of every newspaper editor, to investigate impartially. If the public can be made to realize its duty and interests, the solution of the question will be greatly advanced. As a means to this end, criticism and discussion in the daily press are of the utmost importance and are highly welcome.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

IOWA: Capitol Building, Des Moines, September 19-21. Sec., Dr. Guilford H. Sumner.

MISSOURI: Kansas City, September 25-27. Sec., Dr. Frank B. Hiller, Jefferson City.

NEW YORK: September 26-29. Mr. Harlan H. Horner, Chief of Examinations Division, Department of Education, Albany.

Montana April Report

Dr. William C. Riddell, secretary of the Montana State Board of Medical Examiners, reports the written and oral examination held at Helena, April 4-6, 1911. The number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 75. The total number of candidates examined was 28, of whom 20 passed and 8 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Denver and Gross College of Medicine	(1905)	80.7
Northwestern University Medical School	(1908)	76.9
Chicago College of Med. and Surgery	(1908) 75; (1911)	79.3
Rush Medical College	(1904)	75
Medical College of Indiana	(1896)	75
University of Iowa, College of Medicine	(1910)	75.5
College of Physicians and Surgeons, Baltimore	(1910)	76.6
Baltimore Medical College	(1907)	76.8
Hamline University	(1901) 76.7; (1903) 77.8; (1904) 75; (1908) 76.5.	
St. Louis University	(1908)	84.2
Univ. of Mich., Dept. of Med. and Surg.	(1904) 75.6; (1909)	78.3
Creighton Medical College	(1907)	79
Jefferson Medical College	(1910)	81.3
University of Nashville	(1906)	75
Marquette University, Milwaukee	(1896)	75
FAILED		
Bennett Medical College	(1907)	56.8
Baltimore University	(1900)	59.4
Michigan College of Medicine and Surgery	(1901)	63.4
University of Minnesota, College of Medicine	(1903)	68.6
Barnes University	(1910)	67.8
Marion-Sims Beaumont College of Medicine	(1903)	59
Ohio Medical University	(1902)	47.6
Memphis Hospital Medical College	(1910)	69.9

Florida May Report

Dr. J. D. Fernandez, secretary of the Regular Board of Medical Examiners of the State of Florida, reports the written examination held at Tallahassee, May 8-9, 1911. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 51, of whom 46 passed and 5 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Birmingham Medical College	(1909)	92
University of Alabama	(1910)	88
Yale University	(1898)	81
Atlanta School of Medicine	(1910) 82, 87; (1911) 80, 80, 83, 85, 90	
Medical College of Georgia	(1911)	80, 88
Atlanta College of Physicians and Surgeons	(1906) 84; (1909) 77; (1910) 75; (1911) 87.	
Chicago College of Medicine and Surgery	(1911)	87
Indiana Medical College	(1908)	75
Kentucky University	(1902)	76
Kentucky School of Medicine	(1889) 75; (1897)	87
Tulane University of Louisiana	(1903)	80
Baltimore Medical College	(1906)	84
University of Maryland	(1890) 79; (1910)	75, 88
College of Physicians and Surgeons, Boston	(1910)	88
Creighton Medical College	(1906)	82
Columbia Univ., Coll. of Phys. and Surg.	(1906)	89
Albany Medical College	(1906)	89
New York Med. Coll. and Hospital for Women	(1895)	91
Leonard School of Medicine	(1907)	84
Medical College of South Carolina	(1909)	75
Meharry Medical College	(1911)	86, 90
University of Nashville	(1909) 81; (1911)	75, 90
Memphis Hospital Medical College	(1886) 81; (1893)	87
Tennessee Medical College	(1895)	75
Vanderbilt University	(1910)	81, 82
University of Havana, Cuba	(1897) 80; (1907)	75
University of Athens, Greece	(1906)	75
FAILED		
Medical College of South Carolina	(1910)	58
University of West Tennessee	(1910)	59.7, 62.1
University of the South	(1906)	57.7
University of Tennessee	(1909)	60.1

Kentucky May Report

Dr. J. N. McCormack, secretary of the Kentucky State Board of Health, reports the written examination held at Louisville, May 31 to June 2, 1911. The number of subjects examined in was 10, percentage required to pass, 70, and not less than 60 in any one branch. The total number of candidates examined was 96, of whom 69 passed and 27 failed, including 1 osteopath. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Louisville and Hospital Medical College	(1908)	70
University of Louisville	(1910) 82; (1911) 70, 73, 73, 73, 74, 74, 74, 74, 74, 75, 75, 75, 76, 76, 76, 77, 78, 78, 78, 78, 79, 79, 79, 80, 80, 80, 80, 80, 81, 81, 81, 82, 82, 82, 82, 82, 82, 82, 83, 83, 83, 83, 83, 84, 84, 84, 85, 85, 85, 85, 86, 86, 86, 86, 86, 87, 87, 87, 87, 87, 88, 88, 88, 88, 90.	
Ohio Miami Medical College	(1911)	81, 86
Eclectic Medical College, Cincinnati	(1911)	80, 85
Vanderbilt University	(1911)	82
Meharry Medical College	(1909)	84
FAILED		
Kentucky University	(1905)	66
University of Louisville	(1910) 46, 44, 65, 67, 68, 69; (1911) 45, 49, 51, 61, 61, 62, 63, 64, 66, 68, 69, 71.*	
Louisville and Hospital Medical College	(1908)	52, 66
Louisville National Medical College	(1910)	58
Meharry Medical College	(1909) 63; (1910) 71;* (1911)	43
Old Practitioner†		36

* Fell below 60 in one or more branches.
† No college or year of graduation given.

Minnesota June Report

Dr. W. S. Fullerton, secretary of the Minnesota State Board of Medical Examiners, reports the written examination held at Minneapolis, June 20, 1911. The number of subjects examined in was 11; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 28, of whom 27 passed and 1 failed. Sixteen candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Northwestern University Medical School	(1909)	86, 87
College of Physicians and Surgeons, Chicago	(1911)	76
Rush Medical College	(1910)	86
Hamline University	(1907) 82; (1910) 85; (1911) 83, 83, 84.5, 86.4, 87.	
University of Minnesota, College of Medicine	(1911) 81, 82.6, 83, 83, 84, 84, 84.5, 86, 86, 86, 87, 88, 88, 89, 89.	
Jefferson Medical College	(1909)	80
FAILED		
Laval University, Quebec	(1910)	*77

* Fell below 75 in one or more branches.

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery	(1911)	Illinois
Rush Medical College	(2, 1897)	Iowa
State Univ. of Iowa, Coll. of Med.	(1907) (1908) (1909)	Iowa
Johns Hopkins University	(1905)	N. Dakota
St. Louis College of Physicians and Surgeons	(1909)	Wisconsin
St. Louis University	(1910)	Illinois
Creighton Medical College	(1910)	Nebraska
University of Pennsylvania	(1905) New Jersey; (1907)	Maryland
Jefferson Medical College	(1902)	Michigan
Marquette University, Milwaukee	(1910) (2, 1911)	Wisconsin

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Book Notices

CRIMINAL MAN ACCORDING TO THE CLASSIFICATION OF CESARE LOMBROSO. Briefly Summarized by His Daughter, Gina Lombroso Ferrero. With an Introduction by Cesare Lombroso. Cloth. Price, $2. Pp. 322, with 39 illustrations. New York: G. P. Putnam's Sons, 1911.

In this popular volume, one of the Science Series, Lombroso's daughter has summarized her father's work excellently. By temperament and training she is well adapted for such a task, having from early youth been associated with her father in the collaboration of his epoch-making studies on the criminal and his treatment. In the introduction to this book—Lombroso's last literary work—he gives the reader glimpses of the several important steps and incidents which led to his special studies in a comparatively new field. Very early in his career, while a young army surgeon, with much leisure to pursue special work, it occurred to him that in order to study insanity, it was necessary to study the patient, not the disease. He therefore began the use of clinical methods in the study of skulls; he applied measurements and weights, the esthesiometer and the craniometer. Still later he applied similar methods to the study of the criminal, primarily with a view to differentiate the criminal from the lunatic. But he soon stumbled on the idea that the criminal was not so much different from the insane, and he entirely discarded the studies of crime in the abstract and betook himself to direct analytical studies of the criminal compared with normal individuals and the insane.

Lombroso himself attempts to retrace some of the steps which led him to make important deductions. He relates that while at work on his problem, it fell to his lot to make the post-mortem examination of a celebrated criminal, the brigand Vitella, who was carefully examined by him during life. This Italian brigand possessed such extraordinary agility that he had been known to scale steep mountain heights, bearing a sheep on his shoulders. During the examination of this criminal's skull, Lombroso discovered in the middle of the occipital bone—the usual location for an elevation or spine—a depression, which he named the median occipital fossa, a finding analogous with that observed in the inferior animals, especially the rodents. This depression in the skull corresponded with the hypertrophy of the vermis, known in birds as the middle cerebellum.

This was a revelation to Lombroso and it immediately suggested to him the problem of the nature of the criminal—an atavistic being who reproduces in his person the ferocious instincts of primitive humanity and the inferior animals. Thus, says he, were explained anatomically the enormous jaws, high cheek bones, prominent supercilliary arches, solitary lines in the palms, extreme size in the orbits, handle-shaped or sessile ears found in criminals, savages and apes, insensibility to pain, extremely acute sight, tattooing, excessive idleness, love of orgies and the irresistible craving for evil for its own sake, the desire not only to extinguish life in the victim, but to mutilate the corpse, tear its flesh and drink its blood. The final key, says Lombroso, was given him by the case of Misdea, a young soldier of about 21, unintelligent, but not vicious. Although subject to epileptic fits, he had served for some years in the army when suddenly, for some trivial cause, he attacked and killed eight of his superior officers and comrades. Having accomplished this horrible deed, he fell into a deep slumber, lasting twelve hours, and on awakening appeared to have no recollection of what had happened. This soldier, while representing the most ferocious type of animal, manifested in addition all the phenomena of epilepsy, which appeared to be hereditary in all the members of his family. It flashed across his mind that many criminal characteristics not attributable to atavism, such as facial asymmetry, cerebral sclerosis, impulsiveness, instantaneousness, the periodicity of criminal acts, the desire of evil for evil's sake, were morbid characteristics common to epilepsy, mingled with others due to atavism.

After retracing the steps that lead to his own achievements in the discovery of the congenital epileptoid criminal, Lombroso does not fail to acknowledge the credit due Enrico Ferri and others, who differed from him in that they maintained that Lombroso's type constitutes only a small number of the entire criminal class, and that the greater number of crimes were committed by the occasional criminal and the criminal by passion. Thus, through the epoch-making studies and the advocacy of numerous reforms by Lombroso, the criminal has received humane consideration, and other workers have still further extended the scope of these early studies, so that the edifice of criminal anthropology, circumscribed at first, has extended its boundaries, embracing the special labors on homicide, political crime, crimes connected with the banking world, crimes by women, etc.

The perusal of this book throws a flood of light on the work of the modern school of criminology, of which Lombroso was the founder and most ardent expounder. We know of no more interesting and instructive summer reading for the physician than this well-written and handy volume affords.

GENERAL MEDICINE. Edited by Frank Billings, M.S., M.D., Head of the Medical Department and Dean of the Faculty of Rush Medical College, Chicago, and J. H. Salisbury, A.M., M.D., Professor of Medicine, Chicago Clinical School. Volume I, The Practical Medicine Series. Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Under the General Editorial Charge of Gustavus P. Head, M.D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School, and Charles L. Mix, A.M., M.D., Professor of Physical Diagnosis in the Northwestern University Medical School. Series 1911. Cloth. Price, $1.50. Pp. 405. Chicago: The Year Book Publishers.

The greater portion of this volume of the Year-Book Series is taken up with a review of the literature of tuberculosis and the other acute infections of the lungs, pleura and bronchial tubes, and affections of the heart and blood-circulatory system. Most of the remainder is devoted to the physiology and pathology of the ductless glands, and to certain metabolic diseases, as diabetes, gout, obesity and to nephritis. The section on tuberculosis is comprehensive, covering the pulmonary affection in almost every aspect; it indicates that opinion is crystalizing on certain facts regarding the nature and treatment of this disease, one of them being that the infection is general, with its most destructive local manifestation in the lungs; another that sanatorium treatment is the best. In the section on the circulatory system the anatomy and physiology of the heart and vessels, diagnostic methods, and blood-pressure and its significance are well and interestingly covered. Other sections on immunity, vaccine therapy and on poliomyelitis, giving the status of those subjects during the year, complete a very interesting volume.

SPIROCHETES. A Review of Recent Work with Some Original Observations. By W. Cecil Bosanquet, M.A., M.D., Fellow of the Royal College of Physicians, London. Paper. Price, $2.50 net. Pp. 152, with 90 illustrations. Philadelphia: W. B. Saunders Co., 1911.

This little book is the outcome of a study by the author of the literature dealing with spirochetes. In the first part an effort is made to establish the features peculiar to the genus and in the second part the separate species that have been described are considered briefly. There is a rather useful bibliography appended. The illustrations are numerous, usually fairly well executed, but there are some poor ones. The following statement (p. 15) needs revision: "It is also asserted that whereas bacteriolysins are thermostable (not destroyed by heat), the corresponding substances which act as spirilla (spirochetes) are thermolabile, thus resembling the hemolysins." It is generally accepted that bacteriolysins and hemolysins are quite similar in constitution and behavior with respect to heat and other influences. The book should prove useful as a guide to the literature on the spirochetes.

A RADIOGRAPHIC ATLAS OF THE PATHOLOGIC CHANGES OF BONES AND JOINTS. By Amédée Granger, M.D., Lecturer on Radiology and Electro-physics, New Orleans Polyclinic. Cloth. Price, $6. Pp. 207, with illustrations. New York: A. L. Chatterton Co.

This is a collection of seventy-six half-tone plates from skiagraphs of the bones and joints, with explanatory text. The plates are good, and each one is accompanied by a concise instructive description. The volume will prove useful, for reference and comparison, in the interpretation of skiagraphs of these parts, and is worthy of a place in the library of any one undertaking such work.

PRÉCIS D'ELECTROTHÉRAPIE ET DE RADIOTHÉRAPIE OCULAIRES. Par le Dr. A. Leprince (de Bourges). Paper. Price, 3 fr. 50. Pp. 316, with 33 illustrations: Jules Rousset, 12 Rue Monsieur-le-Prince, 1911.

This monograph is the latest and one of the best works on the subject. It opens with a description of most of the appliances required in the manufacture and employment of an important diagnostic and therapeutic agent. While these instruments are mostly of foreign make, yet they have their American counterparts, so that the reader may easily obtain as good as, and in many instances, a better supply at home. Not only are the faradic, galvanic, static and high-frequency currents described and discussed, but phototherapy and the various kinds of radiotherapy receive extended attention. In the second portion of the work, methods of examining receive due consideration. Finally, in the third division of the work, the use of electricity as a purely therapeutic agent in the treatment of ocular affections is discussed. The text is fairly well illustrated and further elucidated by clinical histories and a description of cases in the practice of the author.

Medicolegal

Licenses Revokable for Pretended Olive-Oil Treatment of Gall-Stones—Allopaths, Etc., as Witnesses Against Different Schools—Unprofessional and Dishonorable Conduct

(Berry vs. State (Tex.), 135 S. W. R. 631)

The Court of Civil Appeals of Texas affirms a judgment revoking the license of the appellant Berry, defendant in the court below, to practice medicine in the state of Texas. It was alleged that he had advertised as a physician and specialist, and especially as being skilled in the treatment and cure of cancers and gall-stones; that he had treated a certain woman for gall-stones, promising to remove them for $40; that he gave medicine composed principally, if not entirely, of olive oil; that she took the medicine, believing that it would cure her, and after taking the same passed from her stomach and intestines a large number of balls, of a green color, from ¼ to ⅝ of an inch in diameter, which were examined by the defendant and pronounced gall-stones by him, whereas the balls were not gall-stones, as the defendant well knew. It was further alleged that the medicine was given with the knowledge and intent that it would form balls, which after passage could be used for the purpose of deceiving the patient. Other instances of such deception were pleaded, and it was alleged that the defendant knew that his representations were false, that they "were grossly unprofessional and dishonorable and of a character likely to deceive and defraud the public." The court thinks that the facts justified the jury in finding that the defendant was guilty of unprofessional and dishonorable conduct such as was likely to and did deceive and defraud the public.

A point was sought to be made of the fact that the law of 1907, under which this suit was prosecuted, does not define what constitutes "other grossly unprofessional and dishonorable conduct of a character likely to deceive and defraud the public." But in Morse vs. State Board of Medical Examiners, 122 S. W. R. 446, the court said that, "unless it be permissible to use language as general as that involved in the statute under consideration, legislation in many instances could not be so framed as to accomplish all that was desired and afford full protection to the public, because of the impossibility of enumerating in detail every separate and distinct act intended to be prohibited." That language was used in regard to the identical part of the statute attacked by the defendant, and the court adopts it as sound and conclusive, however much it may conflict with the decisions of other states. Human ingenuity could not frame a law that would answer the demands of the decision in the case of Matthews vs. Murphy (Ky.) 63 S. W. R. 785, 54 L. R. A. 415, for it would require that every conceivable unprofessional act should be set out and defined before a license could be revoked for any such act.

The question in this case was whether the defendant had perpetrated a fraud on certain patients by giving them certain medicines that would produce certain substances which he represented to be gall-stones and which were not gall-stones at all, and that such representations were fraudulently made, with the intent to deceive the parties to whom he gave the medicine, and thereby obtain money from them. It did not take the wisdom and lore of an "allopath," the knowledge of a homeopath, the philosophy of an eclectic, or the erudition of an osteopath to fit a man to testify to the chemical elements composing the balls, called by the defendant gall-stones; but any chemist of any school of medicine could testify as to their composition. Any one of any school of medicine, or no school, who had the knowledge, could testify that, if a large quantity of olive oil is given and an alkali is also given, a saponaceous mass will be formed in the stomach and intestines. Any one who had obtained the knowledge could testify to the sizes of the cystic duct and common duct and to the ordinary size of gall-stones, and that an ordinary gall-stone could not pass from the gall-bladder through the duct into the stomach or duodenum. No school or system of medicine can change the human anatomy, but it must perforce be the same in all of them, and "allopaths" could testify to questions of anatomy for or against a member of any other school.

It was useless to discuss the question of the competency of a physician of any one school to testify against a physician of another school as to the mode of treatment of disease, because the testimony failed to show different treatment for gall-stones in different schools, and because the defendant showed that he belonged to no one school but was a member of three or more, and was the graduate of several "allopathic" institutions. He was too much of an "allopath" himself to object to "allopathic' testimony, and the court was left in the dark as to whether he gave "allopathic" or eclectic treatment. But, from the amount of oil and other preparations given the patients, the court is justified, perhaps, in presuming that it was not homeopathic treatment. The defendant did not pretend that the olive oil and tartaric acid treatment was taught by the eclectic or any special school, but that it was recognized and accepted in all schools. The "allopathic" physicians were properly allowed to deny the "soft impeachment."

The defendant testified that he knew that the common duct leading from the gall-bladder was too small to accommodate gall-stones of much size; that very little, if any, olive oil taken into the stomach could possibly get into the gall-bladder; that a gall-stone, if dissolved at all in olive oil, must be soaked in it, and the oil must be heated. His testimony alone was sufficient to justify a jury in finding that his treatment was a fraud and that he knew it, and also knew that the material passed by his patients, which he pronounced gall-stones, were not gall-stones.

The statute of 1907 enumerates three causes for which a license may be denied or revoked, but they are separate and independent of each other, and the court is of the opinion that each subdivision of the section is sufficient in itself to justify a judgment of revocation, if supported by facts.

The terms "unprofessional" or "dishonorable" conduct used in the law of 1907 are qualified and modified by the language "of a character likely to deceive or defraud the public," to distinguish them from acts that are unprofessional or dishonorable under the code of ethics prescribed by the honorable profession of medicine that would not, directly at least, react to the disadvantage of the public, such as not advertising, of not entering into a consultation with an attending physician without his consent, and other acts that go to form and constitute the code of the honorable and upright practitioner of medicine. The law leaves to the medical profession the enforcement of its rules of ethics, and, however conducive they may be to creating and preserving the high standard of one of the most important and honored professions in the world, takes no cognizance of them, and does not seek to enforce them, except in so far as their infraction may infringe on the rights and welfare of the public. But when the unprofessional conduct of the member of the medical profession is of such a character as to deceive or defraud the public, then the law

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denounces such conduct, and strips the offender of the means which make it possible to impose on the credulous and unwary. Such unprofessional conduct would necessarily be closely allied to crime, because it is defrauding the public, and yet it was never intended to confine such conduct to the kind or class of offense that is denounced by the Criminal Code of Texas. That is provided for in a different subdivision of the statute from the one under which this case was prosecuted. The defendant was charged with dishonorable and unprofessional conduct which was calculated to deceive or defraud the public, and such conduct might not necessarily be a crime against the laws of Texas. The gist of the charge in this case was dishonorable conduct calculated to deceive or defraud the public, and the court very properly confined the attention of the jury to that charge. The case of Morse vs. Medical Examiners does not hold that when such a charge as this is made, proof of a felony or other crime must be made, but merely states that the unprofessional conduct must be similar in nature to a crime, as is any attempt to deceive or defraud the public. It is similar and close akin to swindling, but all the essentials of swindling need not be proved in order to justify a verdict of dishonorable or unprofessional conduct.

Society Proceedings

COMING MEETINGS

Colorado State Medical Society, Steamboat Springs, Aug. 15-17.
American Electro-Therapeutic Association, Philadelphia, Sept. 6-7.
Medical Society of the Missouri Valley, Omaha, Neb., Sept. 7-8.
Washington State Medical Association, Spokane, Sept. 5-7.

MEDICAL SOCIETY OF NORTH CAROLINA

Fifty-Eighth Annual Meeting, held at Charlotte, N. C., June 20-22, 1911

Under the Presidency of DR. C. M. VAN POOLE, Salisbury

The Pediatric Aspect of Tuberculosis

DR. PAUL H. RINGER, Asheville, N. C.: The child of to-day is the consumptive of to-morrow, and hence prophylaxis is the key-note of the situation. Etiologically the best authorities favor the inhalation route of infection, despite the assertions of von Behring and others to the contrary. The connection between tuberculosis and the acute infectious diseases of childhood would seem to rest on the catarrhal inflammation of the mucous membranes occurring in the latter, this inflammation when affecting the membranes of the upper respiratory tract paving the way for infections by inhalation. Symptoms of tuberculosis in the child and infant are notoriously inconstant. This applies more to the pulmonary type of tuberculosis than to the infection of other portions of the body. Physical signs are atypical, râles and partial consolidation, so suspicious in the adult, often clearing up rapidly and completely, while sporadic signs in unusual portions of the chest may determine serious trouble.

Modes of treatment are more sociologic and philanthropic than distinctly medical. The following plans have been attempted with success: 1. Sending children of infected families away to the country for a few weeks or months. Life wholly in the open. Fed bountifully and all occupations are out-of-doors. Thus children in the hazy "pretuberculous" stage, or those mildly infected, are restored to health. 2. Children remaining at home are given interest in garden plots and cultivate the same—keeps them in the open. 3. Day camps; extra nourishment. 4. Open-air school.

Treatment depends on two factors: 1. Fresh air and good food; drugs seldom, if ever. 2. Cooperation on the part of the various educational elements of society, medical, sociologic, philanthropic.

Mortuary Statistics in North Carolina for 1910

DR. THOMAS M. JORDAN, Raleigh: There died in 1910 from preventable diseases alone, in North Carolina, 6,500 persons; from whooping-cough, 230; measles, 200; diphtheria, 265; smallpox, 5; typhoid, 1,110; tuberculosis, 4,690. The medical profession should demand of the state measures to prevent tuberculosis like other communicable diseases. It is twenty times as destructive to life as measles, whooping-cough or diphtheria, and nine hundred and forty times as death-producing as small-pox. In a public health way, doctors are acting as to tuberculosis exactly as they did when they regarded tuberculosis as incurable and non-communicable.

DISCUSSION

DR. C. A. JULIAN, Thomasville: Physicians should be required to report privately all cases of tuberculosis to their superior health officers, and these officers should be required to furnish such patients with health instructions and make them carry out the instructions in detail. Every case of tuberculosis should be cared for by the state, where the families are unable to care for their own patients. I do not believe in placarding the homes of such patients, because that gives the public a false feeling of fear. Where proper care is had in these homes, and if a private report has been made on these cases, and the law is followed to the letter, and the doctor and the patient do their duty, the patient is not a menace and does not require a card sticking up outside his door advertising the fact that he has tuberculosis.

Treatment of Intestinal Tuberculosis

DR. SAMUEL G. GANT, New York: The therapeutic measures employed by me in the treatment of bowel tuberculosis are as follows: (1) Measures for improving the general health. (2) Symptomatic treatment using codein, guaiacol or creosote to allay irritable coughing, opium and belladonna to control pain, cramps and diarrhea and, when necessary, combining them with an antiseptic or astringent. (3) Irrigations of ichthyol, balsam of Peru, boric acid or krameria and soda ½ per cent., alternated daily with high injections of olive oil and bismuth to soothe the bowel. (4) Topical applications of silver nitrate 8 per cent., balsam of Peru or ichthyol, 20 per cent. made directly to the ulcers tri-weekly through the proctoscope or sigmoidoscope. (5) Surgical treatment including appendicostomy and cecostomy by means of which a way is provided for through and through irrigation; exclusion for the purpose of preventing the feces from passing over the affected segment and resection where the diseased intestine is removed, which offers the best permanent results.

The Ileocecal Fold and Chronic Appendicitis

DR. J. SHELTON HORSLEY, Richmond, Va.: Operations for chronic appendicitis, while practically free from mortality, do not always relieve morbidity. The essential cause of unrelieved pain is the fact that the condition which produced the pain was not corrected. Either the diagnosis was not accurate and such diseases as stone in the kidney, rheumatism, spinal trouble, ulcer of the duodenum or stomach or Lane's kink were not excluded or else the local condition about the appendix was not properly interpreted. The ileocecal fold may be shortened by inflammation and consequently produce a pulling or a kinking of the terminal ileum or it may be so constricted by a ligature on the mesentery of the appendix as to cause a greater pulling by the ileocecal fold than existed before the operation. This fold is inserted in the terminal ileum and the ileocecal junction. If well developed it may cover as much as the last 3 inches of the ileum and passes downward into the border opposite the mesenteric attachment. It passes down and blends with the mesentery of the appendix and sometimes is inserted into the appendix itself. Consequently, a ligature in the mesentery of the appendix will produce a marked pulling on the ileum when the ileocecal fold is well developed. I remove the ileocecal fold, if at all well developed, in every operation for chronic appendicitis. I cut this fold close to its insertion into the ileum and dissect it down to where it reaches the mesentery of the appendix, at which point it is ligated. Since adopting this procedure there have been fewer complaints of postoperative pain from patients operated on for chronic appendicitis.

Acute Pancreatitis: Report of a Case

DR. R. L. GIBBON, Charlotte: A man, aged 46, had enjoyed excellent health, with the exception of occasional mild attacks

of indigestion. In the last six or seven months he had suffered acute colicky pains in the abdomen, usually at night, lasting a few hours, and coming on at intervals of ten days or two weeks. For a long time his general health had not seemed to suffer, except for the last few weeks, when he began to lose some flesh. The attacks bore little, if any, relation to food taken. Last attack began the night of February 17. Pain was more violent than usual. Abdominal wall was rigid. Temperature, 99½ F. Some vomiting, but not marked. No jaundice. Pain was referred to the epigastric region just below the ensiform and to the left side of the abdomen. Examination of appendix and gall-bladder, negative. Two days later patient's condition unimproved. Blood-count at this time showed hemoglobin, 70 per cent.; red cells, 4,000,000; white cells, 15,600; no nucleated reds; no malaria. Kidney tests, negative. Patient had slept very little since beginning of attack. Facial expression, bad. Tender spots on left side of abdomen.

On February 22, abdomen was opened through right rectus muscle, with a view of being accessible to either gall-bladder, stomach or pancreas. On entering the cavity there were abundant signs of pancreatitis. Adhesions to anterior abdominal wall on left side, and to the body and tail of pancreas. Omentum and fat around bowels, especially in vicinity of pancreas, showed whitish patches of fat necrosis. Pancreas was greatly enlarged, tail extending far over to the left, but contrary to usual rule, head of pancreas was not noticeably swollen, which probably accounts for the absence of jaundice. Gall-bladder appeared normal and no stones could be felt. Patient showing indications of collapse, capsule of the pancreas was torn through at one point and drainage tube inserted, abdomen being closed through at one point and drainage tube inserted, abdomen being closed with through and through silkworm gut. For the same reason, and because no gross pathologic condition was found, the gall-bladder was not drained. For several days after operation but little hope of recovery for patient was entertained. Pulse was weak, color bad, and respiration difficult. After a few days there was considerable discharge of a thick, chocolate-colored pus. Drain was kept open as long as possible. Patient made a gradual recovery, and at the present time is attending to his duties, although he has not entirely regained his flesh and strength.

Enemata in Surgical Cases

Dr. R. L. Payne, Norfolk, Va.: It is a mistake to believe a nutritive equilibrium can be maintained by enemata, and patients suffering from stomach and other troubles requiring operation should not have operation delayed while nutritive enemata are given to build them up. Not more than 300 calories can be absorbed in the twenty-four hours from the rectum, or less than one-sixth the amount necessary to maintain life. The only thing certain of absorption from the lower bowel is water, and the study of cases of starvation show that life is almost indefinitely prolonged if water is supplied freely. This is so not only because water makes up so large a percentage of body tissue but especially because no elimination of the poisonous waste of the tissues can go on without a supply of water. It follows that a patient whose life would be sustained for many days by the caloric resultant from the burning of his own tissues, will die quickly when deprived of water, because of auto-intoxication from retention of his own waste products. It is a serious question, are not albuminoids in the large bowel liable to be broken up by putrefactive bacteria into ptomaines that may become serious sources of danger to the patient? In my own practice, when the stomach will not retain food, I depend almost entirely on normal salt solution or 5 per cent solution of glucose, as glucose requires no digestion but passes directly into the liver to be transformed into glycogen and is abundant in heat-giving power. There are conditions of the kidney in which too much sodium chlorid can be given and in these cases plain water may be substituted. Always remember when the need is urgent, one must not risk irritating the rectum by giving so-called nutritive enemata, but depend on water. All enemas, to be retained, must be given in the Trendelenburg posture and this is accomplished by raising the foot of the bed.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Journal of Tennessee State Medical Association, Nashville

July

1 Pellagra. R. G. Tucker, Nashville.
2 *Pellagra, With Report of a Case. E. H. Jones, Murfreesboro.
3 *Practical Laboratory Work for General Practitioner. N. Evans, Nashville.
4 Calculus of Kidney. E. D. Newell, Chattanooga.
5 *Remarkable Case of Catatonia. J. W. Stevens, Nashville.
6 Ophthalmia Neonatorum. E. C. Kane, Memphis.

2 and 3. Abstracted in The Journal, May 6, 1911, pp. 1354 and 1355.

5. **Catatonia.**—The patient, male, aged 23, had shown some erratic behavior for several months, culminating a few days before Stevens saw him in a frank psychosis. He lay in bed with eyes tightly closed and was so utterly irresponsive to every effort to arouse him, to induce him to speak, to move or to open his eyes, that his family were much alarmed and feared that he was suffering from some severe brain lesion. For several days previous he had expressed delusions to the effect that he was the Christ, and that he would live always. For a few days subsequent to admission to the sanatorium he would take food and would talk a little. Soon, however, he ceased to do either, and during the past eleven months he has not spoken a word save on three or four occasions, and has less than half a dozen times taken any food spontaneously. At the few times when he has been induced to speak, he has indicated that he fully understands all that is said to him. His refusal of food resulted in resorting to tube-feeding, which has been done regularly twice daily for the past eleven months. For a short time after admission he abandoned his first state of inertia, and would walk about the house and grounds. This, however, soon gave place to inactivity, so that he would sit motionless for hours. The cataleptic state now presented, with classical *cereа flexibilities*. With eyes tightly closed and lips so closely compressed that they extended forward like a snout, he remained mute and totally inactive, and would maintain indefinitely any posture in which his body or limbs might be placed, regardless of how awkward, uncomfortable or cramped this might be.

About a month after admission this gave place to that condition which has continued to the present, viz., a rigid tenseness of every muscle in the body under his voluntary control. To stand him up was like ending up a log, and to stand him on his head was rather easier than to stand him on his feet. This was continued unmitigated for seven months. About Jan. 1, 1911, it began to be noticed that the patient rolled in bed occasionally, turning from side to side, never turning over on his face, but rolling squarely on his side each time as far as possible without precipitating himself forward. This, from an occasional thing, quickly increased in frequency of occurrence, until by the middle of the month it reached the point where he rhythmically turned back and forth twelve or fifteen times a minute, and for many hours each day. From this point the frequency, or rapidity of the turns increased, as did the number of hours in which he daily engaged in it, until the fastigium was reached on February 9, when by careful estimate, during sixteen and one-half hours he rolled from one side to the other 48,256 times. For a period of six hours he turned 17,648 times, or an average of 49 times a minute. Repeated comparisons during the remainder of the sixteen and one-half hours indicated the rate of turning to be the same. Not unremarkable was the fact that the rhythm of the turning scarcely varied at all. During the latter part of February and through March and April his average was something like 15,000 turns, or approximately 3 miles of rolling daily. Since May 10 he had rolled much less. About this time he was put out on the porch for the sake of fresh air. Thinking that he was there unobserved, he would frequently remain still for an hour, relaxed and looking about naturally. The moment, however, he realized that he was being watched, he instantly closed his eyes, stiffened himself, and resumed rolling.

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Southern California Practitioner, Los Angeles

July

7 Belladonna Treatment for Drug and Alcohol Addiction. R. Moore, Los Angeles.
8 Changing Type of General Paralysis. C. L. Allen.
9 Surgery of the Palate. T. W. Brophy, Chicago.
10 Stereoscopic Roentgenography. A. Soiland, Los Angeles.
11 History of Medicine From Hippocrates to Galen. R. L. Cunningham, Los Angeles.

Journal of Infectious Diseases, Chicago

July

12 *New Stain for Bacterial Capsules With Special Reference to Pneumococci. E. C. Rosenow, Chicago.
13 *Problem of Transmission in Typhus. R. M. Wilder, Chicago.

12. Stain for Bacterial Capsules.—After much experimentation the following method has been devised by Rosenow: Make a thin smear on a perfectly clean slide or cover-glass. If the exudate, such as sputum, is too thick, add enough distilled water so that the material can be spread evenly by means of a piece of fine tissue or cigarette paper. In case of cultures (blood-agar, serum-glucose-agar or Loeffler's blood-serum being preferable) remove a small amount of the growth from the surface of the medium and at once mix thoroughly with a loopful of serum on the slide and spread by means of tissue paper, or better still, make a rather dense suspension in a few drops of distilled water, and then mix an equal quantity of this suspension with serum. As the smear becomes nearly dry, cover for 10 to 20 seconds with a 5 to 10 per cent. aqueous solution of tannic acid; wash in water and blot; stain with carbol (saturated alcoholic solution gentian violet [Grübler] 1 pt., 5 per cent. phenol in water, 4 pts.) or anilin-gentian-violet one-half to one minute, heat over flame but do not boil; wash in water again; Gram's iodin solution for one-half to one minute; decolorize in alcohol (95 per cent.); stain for from two to ten seconds, depending on the thickness of smears, with saturated alcoholic (60 per cent.) solution of Grübler's eosin; wash in water and blot; finally, clear in xyxol and mount in balsam, or examine directly. (If the organism like *B. mucosus* is Gram-negative it may be stained with Loeffler's or aqueous methylene blue.) In case of sputum in which the cocci are imbedded in a more or less tenacious mucus, the capsules, at times, are not rendered stainable by the above method. In that case Rosenow says it is well to fix and stain simultaneously with the 2 per cent. aqueous tannic acid, 4 parts, and saturated solution of gentian violet, 1 part. This modification often gives beautiful results. The cocci, however, decolorize easily and the tannic-acid-gentian-violet may be followed by carbol-gentian-violet and then the usual procedure. Ordinary carbol fuchsin diluted 5 to 10 times, aqueous eosin (50 per cent. sat. sol.) may also be used to stain the capsule although the saturated alcoholic (60 per cent.) eosin has given the best results. Decolorization after the modified Gram procedure of tannic-acid-fixed smears is more rapid than in the case of heat-fixed smears, which should be borne in mind.

13. Transmission in Typhus.—That typhus is an insect-borne disease, and that it is contagious only in so far as infected vermin are transmitted from host to host by contact and is not contagious under conditions in which vermin are excluded, appears from Wilder's experimental studies and investigations. He says that three insects should be regarded with suspicion as possible conveyors of the infection. These are the flea, the bedbug and the louse. The epidemiology of typhus indicates the possibility that neither fleas nor bedbugs ordinarily play any great rôle in transmission. The body louse (*Pediculus vestimenti*) stands incriminated, first, by the experimental results of the author and others, and again by the epidemiology of the disease. The louse theory is in every way consistent with the etiology of Mexican typhus so far as this is understood and explains several important phases of the epidemiology which were formerly obscure. Chief among these are, (a) the geographic limitation of typhus to the central tableland of Mexico, (b) the seasonal variation of the disease, and the effect of temperature and rain on the epidemics in Mexico City. It is very important that prophylactic sanitary measures directed against typhus fever should take into primary consideration the body louse.

Archives of Pediatrics, New York

July

14 *Scarlet Fever. Its Specific Microorganism. A. E. Vipond, Montreal.
15 Prevention of Contagious Diseases in Infancy, With Special Reference to Whooping-Cough and Measles. F. P. Webster, Portland, Me.
16 Contagious Diseases, Modern Treatment. A. J. Bell, Cincinnati.
17 Casuistry of Chylous Ascites and Chylocele in Sucklings and Infants. D. M. Cowie, Ann Arbor, Mich.

14. Also published in *Canadian Medical Association Journal*, July; see abstract No. 105 in this issue of THE JOURNAL.

Annals of Surgery, Philadelphia

July

18 *Control of Bleeding in Operations for Brain Tumors. H. Cushing, Baltimore.
19 Subluxation of the Atlas. L. W. Ely, Denver, Colo.
20 *Treatment of Aneurysm of the Abdominal Aorta by Partial Occlusion of the Aorta with the Metallic Band. W. D. Gatch, Baltimore.
21 Negative Tension Drainage in the Treatment of Empyema. E. M. Von Eberts, Montreal.
22 *Carcinoma Mastitoides. E. A. Schumann, Philadelphia.
23 Epigastric Hernia. L. W. Hotchkiss, New York.
24 Pathology and Symptomatology of Cholelithiasis. A. J. Walton, London, Eng.
25 Some Modifications of Technic in the Surgery of the Gall-Bladder and Bile-Ducts. J. E. Summers, Omaha, Neb.
26 Mesenteric Cysts. G. C. Ney and A. L. Wilkinson, Baltimore.

18. Hemostasis in Brain Operations.—One of the chief objects of concern in intracranial surgery should be the avoidance of any unnecessary loss of blood, for at best, in many cases of brain tumor associated with venous stasis, bleeding is likely to be so excessive as to necessitate postponement of the final steps of the procedure until a second or even a third session. The common methods of blood-stilling by sponge, clamp and ligature are largely inapplicable to intracranial surgery, particularly in the presence of bleeding from the nervous tissues themselves, and any device which serves as an aid to hemostasis in these difficult operations will bring a larger number of them to a safe termination at a single sitting, with less loss of blood and less damage to the brain itself. In addition to the more familiar tourniquet for the scalp, and wax for diploetic and emissary bleeding, suggestions are offered by Cushing as to the use of gauze pledgets, dry sterile cotton, fragments of raw muscles and other tissues, as well as sections of organizing blood-clots for superficial meningeal bleeding, and silver "clips" for inaccessible individual points either in dura or brain.

20. Occlusion of Aorta with Metal Band.—From observations made in two cases Gatch concludes that the presence of the large waxy casts in the urine in both was due to the diminished blood-supply to the kidneys, brought about by the constriction of the aorta; in the second case this constriction was just above the renal arteries, but in the other, first of the thoracic aorta, and then of the abdominal aorta below the origin of the inferior mesenteric artery. The necropsy findings in the second case, in which the right renal vein was enormously distended, lend some support to this supposition. In this case the constant presence of the casts in the urine, even after the restoration of the normal blood-supply to the organs below the band, is attributed to the obstruction to the vessels of the right kidney. This kidney at necropsy showed marked degenerative changes. Gatch found that the pain of an abdominal aneurysm may be greatly lessened and its growth checked by the application of a partially occluding metallic band to the aorta, proximal to the aneurysm. When the aneurysm is saccular and gives origin to no important vessels a cure is possible by this means.

22. Carcinoma Mastitoides.—Morphologically carcinoma mastitoides does not differ from certain forms of carcinoma simplex; the marked difference which does exist is due entirely to the interaction of the carcinoma and the profound inflammatory reaction produced by it. It follows, then, in Schumann's opinion, that this excessive reaction of these special cancer cells on the surrounding tissues, a reaction sufficiently marked to engender a general, diffuse, round-cell infiltrate and connective-tissue hyperplasia so profound as to frequently eventuate in breakdown and abscess formation, must be based

either on some peculiar toxin formed by the cells themselves, or on a localized loss of resistance to tumor invasion, existent in the breast itself. Inasmuch as these growths are almost always found in mammæ either in early lactation or the last weeks of pregnancy, when the glands are functionally at the height of their activity, it would seem that this condition is the determining factor. The exact process can only be described conclusively when more complete knowledge of the chemistry, notably the toxin-forming power of carcinoma, is attained. It seems a logical deduction, however, to Schumann, that when the essential elements of the mammary gland are in full activity, fulfilling their excessive and occasional function, the secretion of milk, that they must be exceedingly vulnerable to the action of any foreign toxin, as a result of which action pronounced inflammatory response is a direct sequence. Diagnosis, as has been said, presents the greatest difficulty, and the only scientific procedure is to excise a small portion of the tissue for microscopic examination in all cases of supposed acute mastitis that do not yield to treatment which should ordinarily effect a prompt reduction of the inflammation. He adds one case to eleven already recorded in the literature by various observers.

United States Naval Medical Bulletin, Washington, D. C.

July

27 Tropical Diseases in Their Relation to the Eye. E. M. Shipp, U. S. Navy.
28 Intravenous Administration of Salvarsan. G. B. Trible and H. A. Garrison, U. S. Navy.
29 Mental Examination of Fifty Recruits Who Became Insane Soon After Enlistment. H. Butts, U. S. Navy.
30 Diagnosis and Treatment of Hernia in the Navy. B. F. Jeness, U. S. Navy.
31 Davaines Madagascariensis in the Philippines. P. E. Garrison, U. S. Navy.
32 Interpretation of Negative and Weakly Positive Reactions in Noguchi's Complement Fixation Test. M. E. Higgins, U. S. Navy.
33 An Improved Roentgen-Ray Apparatus. H. A. Harris, U. S. Navy.
34 Fracture of Mandible with Improved Method of Adjustment. W. A. Angwin, U. S. Navy.
35 Gunshot Wound of the Elbow. R. Spear, U. S. Navy.
36 Clinical Symptoms Appearing Immediately After Antityphoid Inoculation. J. R. Phelps and G. F. Clark, U. S. Navy.
37 Posterior Gastro-Enterostomy Three Years After Anterior Gastro-Enterostomy. A. M. Fauntleroy, U. S. Navy.
38 Pontine Hemorrhage Resulting From a Blow in Boxing. H. C. Curl, U. S. Navy.
39 Fracture of the Zygoma. R. B. Williams, U. S. Navy.
40 Death From Unruptured Thoracic Aneurysm. E. P. Huff, U. S. Navy.
41 Aplastic Pernicious Anemia Associated with Anchylostomiasis. E. R. Stitt, U. S. Navy.
42 Balantidium Coli Infection Associated with Amebic Dysentery. G. B. Trible, U. S. Navy.
43 Return of Syphilitic Symptoms After Administration of Salvarsan. C. F. Sterne, U. S. Navy.
44 A Case of Syphilis Which Possibly Demonstrates the Efficacy of Prophylaxis Against Venereal Disease. E. H. H. Old, U. S. Navy.
45 Cerebral Syphilis in a Native of Guam. W. M. Kerr, U. S. Navy.
46 A Case of Autoserotherapy. E. O. J. Eytinge and L. W. McGuire, U. S. Navy.
47 Hemoglobinuric Fever. D. G. Sutton, U. S. Navy.
48 Shock Caused by Lightning Stroke. W. S. Hoen, U. S. Navy.
49 An Unusual Cause of a Burn. F. M. Munson, U. S. Navy.
50 Traumatic Extrusion of Testicle. J. A. B. Sinclair, U. S. Navy.

Journal of Biological Chemistry, Baltimore

July

51 Sulphur Linkages in Proteins. T. B. Johnson, New Haven, Conn.
52 Thoamides: The Formation of Thiopolypeptid Derivatives by the Action of Hydrogen Sulphid on Aminoacetonitril. T. B. Johnson and G. Burnham, New Haven, Conn.
53 Digestibility of White of Egg as Influenced by the Temperature at Which It Is Coagulated. P. Frank, New Orleans.
54 *Amino-Acids in the Mature Human Placenta. A. H. Koelker and J. M. Siemons, Baltimore.
55 A Biochemical Study of Proteus Vulgaris Hauser. C. A. Herter and C. T. Broeck, New York.

54. Amino-Acids in the Placenta.—The authors examined eighty-three placentæ. They found that approximately one-half of the fresh placenta is blood. The dried placental material is about 7 per cent. of the gross weight of the organ. The hydrolytic products represent at least 31 per cent. of the organic matter. Placental tissue, free of ash and moisture, contains 14.9 per cent. of nitrogen. The nitrogen in the isolated products represents 5.6 per cent. of the weight of the material used for hydrolysis.

Ophthalmic Record, Chicago

July

56 Eye Findings in Hereditary Syphilis. E. Stieren, Pittsburg, Pa.
57 New Method of Operating for Cataract and Artificial Pupil. J. G. Huizinga, Grand Rapids, Mich.
58 Case of Endogenous Panophthalmitis Due to B. Coli. F. Bentley, Seattle, Wash.

Bulletin of the Johns Hopkins Hospital, Baltimore

July

59 *Changes in the Circulation in Aortic Insufficiency. W. G. MacCallum, New York.
60 *Clinical Use of Scarlet Red and Its Component Amidoazotoluol, in Stimulating the Epithelization of Granulating Surfaces. J. S. Davis, Baltimore.
61 Limitations in Interpreting Thyroid Histology. D. Marine and C. H. Lenhart, Cleveland.
62 *Pneumococcus Peritonitis. Report of a Case. H. B. Stone, Baltimore.
63 An Anomalous Duct Belonging to the Urinary Tract. P. G. Woolley and H. A. Brown, Cincinnati.
64 *Acute Cholecystitis with Large Amounts of Calcium Soaps in the Gall-Bladder. J. W. Churchman, Baltimore.

59. Changes in Circulation in Aortic Insufficiency.—By means of a special arrangement MacCallum was able to estimate the work of the ventricle and to study the influence of various factors on it. He found that the tearing of an aortic valve producing an aortic insufficiency causes the heart to perform an extraordinary amount of work, part of which is devoted to the maintenance of nearly a normal rate of flow in the vessels, while the remainder is expended on the forcing out of a quantity of blood which each time regurgitates through the torn valve. This extensive and violent excursion of the ventricle, together with the effect of the regurgitation, produces a very great pulse-pressure with low diastolic pressure and the low tension of the arterial wall allows a great systolic fling which occupies a relatively large part of the height of the pulse curve and thus causes the dierotic notch to occupy a low position, which is another characteristic of the collapsing pulse. The malnutrition of the heart muscle which follows the severer insufficiencies, may be enough to cause the rapid dilatation of the heart and the death of the animal. In such cases the results are quite different from those in which the heart maintains its activities.

60. Also published in the *Annals of Surgery*, May, 1911, and abstracted in THE JOURNAL, June 3, 1911, p. 1684.

62. Pneumococcus Peritonitis.—Pneumococcus peritonitis, Stone says, occurs more often in children than in adults, and more often in female than male children. There are two forms: the encapsulated, which exhibits a first period of invasion, a second period of localized abscess formation, and a third of spontaneous rupture of the abscess; and the diffuse form of general peritonitis rapidly fatal unless treated surgically. The symptoms of onset in both forms, varying only in intensity, are abdominal pain, vomiting, fever and diarrhea. Rigidity is not characteristic. The treatment is surgical intervention as soon as possible. The prognosis of the diffuse form is very bad; of the localized form, fairly good. The pus is characteristic, and often sufficient for diagnosis from its macroscopic appearance alone.

64. Acute Cholecystitis.—There was nothing unusual about the clinical features of Churchman's case. The patient presented the typical picture of an acute cholecystitis. She had never had typhoid. The illness began two days before admission with chills, fever and a general aching. Delirium appeared that night and the next day there was abdominal pain, at first general, then localized in the right side and radiating to the right shoulder. Nausea and vomiting were present, but there was no jaundice. The physical signs were those of acute cholecystitis. The gall-bladder was not palpable. The liver was slightly enlarged. At the operation straw-colored fluid was found in the peritoneal cavity, cultures from which remained sterile. The appendix was normal, but the gall-bladder was distended and much inflamed. After isolating it with gauze, it was aspirated, but instead of the pus which was expected a fluid, unlike anything previously seen in the gall-bladder, appeared in the barrel of the syringe. It was for a moment uncertain whether what had been supposed to be gall-bladder might not prove to be a cystic growth of the liver. On opening it, however, a large number of bile-stained stones were found and removed. There was neither bile nor

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pus in the gall-bladder. The cystic duct was completely blocked by stones. The contents of the distended gall-bladder consisted entirely of a material like that which had been aspirated. The gall-bladder was drained in the usual manner. Convalescence was without event. Three small stones were found in the tube at the first dressing. The discharge from the biliary fistula was at first brownish, later purulent, then thin and mucoid, but it never contained bile. The wound healed to a pin-point opening, through which the limpid mucoid material, characteristic of hydrops, continued to drain.

The sinus persisted, causing the patient almost no inconvenience, but discharging at intervals. After a year had elapsed, she returned to have it closed. At this operation, the gall-bladder contained much clear mucoid fluid (from which no organism could be grown) and a few faceted, pigmented stones. The distended cystic duct contained many gall-stones and communicated with the gall-bladder by an opening so small that the stones could only with great difficulty be delivered into it. The common and hepatic ducts contained no stones. The usual drainage was carried out. Bile appeared in the sinus on the seventh day and soon became profuse. The wound closed promptly and has remained healed. An agar slant was inoculated with some of the material and the *B. typhosus* grew out in pure culture. The patient's Widal reaction was taken and found positive. A chemical analysis of this material showed it to consist largely of soaps of the calcium salts. Some free fatty acids were also present, but no bile pigments.

Archives of Ophthalmology, New York

July

65 Unusual Case of Ectropion of the Uvea and Extensive Defect of Iris. J. Dunn, Richmond.
66 Bilateral Marginal Thinning and Keratectasia With Perforation on One Side. M. H. Schutz, Chicago.
67 Improved Illumination for the Zeiss Binocular Corneal Microscope.—Used in the Study of Episcleral Vessels and Their Circulation. W. H. Luedde, St. Louis, Mo.
68 Sympathetic Ophthalmia, First Appearing Four Days After Removal of the Exciting Eye. C. B. Welton, Peoria, Ill.
69 Indications for Operation in Heterophoria and Squint. A. Duane, New York City.
70 Effect of Atoxylon on Eye. Igersheimer, Halle-A.-S.
71 Operative Treatment of Glaucoma by Iridotasis. J. Borthen, Bergen.

Iowa Medical Journal, Des Moines

July

72 *Some Unusual Complications of Typhoid. C. P. Howard, Iowa City.
73 Pathogenesis of Impaired Vision. P. R. Wood, Marshalltown.
74 Observations in Eight Years of Osteopathy. W. A. Rush, Omaha.
75 Pregnant Uterus Didelphys. A. E. Acher, Fort Dodge.
76 Acute Dilatation of the Stomach. C. Burnside, Des Moines.
77 Clinical Briefs in Neurology. F. A. Ely, Des Moines.
78 Standard of Nursing. L. Bristol, Ann Arbor, Mich.

72. **Complications of Typhoid.**—The cases cited by Howard are: (1) Hemorrhagic typhoid, with hematoma of the left rectus abdominis; (2) typhoid with thrombosis of the iliac vein, septic infarct of the lung and pyo-pneumo-thorax; (3) typhoid with thrombosis of the left iliac and femoral arteries and femoral vein, and gangrene of the left leg; (4) typhoid with thrombosis of the aorta and both iliac and femoral arteries, symmetrical gangrene of the legs; (5) typhoid with intestinal hemorrhage, cutaneous hemorrhage and meningitis; and (6) typhoid with acute nephritis, multiple abscesses of the kidney and intestinal hemorrhage.

Journal of Nervous and Mental Diseases, Lancaster, Pa.

July

79 Charles Bell and His Studies in Neurology. H. M. Thomas.
80 Statistical Summary of Cases in Department of Neurology, Vanderbilt Clinic, for Ten Years, 1900 to 1909. S. E. Jelliffe and A. A. Brill.

American Journal of Medical Sciences, Philadelphia

July

81 *Postoperative and Postanesthetic Neurasthenias and Psychoses. J. K. Mitchell, Philadelphia.
82 *Nitrogen Metabolism in Three Cases of Duodenal Alimentation. M. Einhorn and J. Rosenbloom, New York City.
83 *Dilatation Test for Chronic Appendicitis. W. A. Bastedo, New York City.
84 Acquired Diverticula of Sigmoid, With Report of Six Cases. A. D. Dunn, Omaha, Neb., and P. G. Woolley, Cincinnati.
85 Perforating Ulcer of Duodenum: Death From Pulmonary Thrombus. G. T. Vaughan, Washington, D. C.
86 *Purpura Hemorrhagica. Report of Atypical Case. A. C. Matthews and H. P. Carpenter, Poughkeepsie, N. Y.
87 Neoplasms Within the Skull: Early Diagnosis and Treatment. T. A. Williams, Washington, D. C.
88 Reflections on Some Criticisms of Psychoanalytic Method of Treatment. E. Jones, Toronto.
89 Apiastic Anemia, With Report of Case. R. C. Larrabee, Boston.
90 *Granuloma Pyogenicum (Botryomucosis Hominis of the French). R. L. Sutton, Kansas City, Mo.
91 *Generalized Eruptions of Unusual Type, Caused by Absorption From a Belladonna Plaster and From the Ocular Instillation of Atropin. F. C. Knowles, Philadelphia.
92 *Investigations Concerning Value of Microscopic Examination of the Blood for Bacteria. G. A. Fried, Bedford Hills, N. Y., and A. Sophian, New York City.
93 *Digestion in Fever. J. B. Nichols, Washington, D. C.
94 Hemorrhages in Pulmonary Tuberculosis. C. M. Montgomery, Chestnut Hill, Pa.
95 Mountain Sickness. A. Strauch, Chicago.

81. **Postoperative and Postanesthetic Neurasthenias and Psychoses.**—There is not and there cannot well be any reliable evidence as to the frequency with which neurasthenias or other forms of mental disturbance follow operations, since the operating surgeon often knows nothing of their occurrence, many of them not making their appearance until weeks or even months after surgical and anatomic recovery is complete. The surgeon's records, therefore, only show such acute troubles as passing deliriums, temporary confusion, or aberration, such as sometimes appear directly after operations, and which may with probability be referred rather to the anesthetic or to the physical shock than to the operative procedure; some examples of this type are recorded in the accompanying list. Mitchell has made examination of some hundreds of case histories, taken with few exceptions during eight or ten years past. Certain definite forms of neurasthenia and psychasthenia have been omitted from consideration altogether, as those of sexual origin, a few in which it seemed possible that beginning paresis or dementia præcox was at the root of the symptoms, several in which the history was too vague and those in which the patient for any reason was not long enough under observation for the certain establishment of the diagnosis.

Three hundred and forty-four histories remained after these exclusions. These were reviewed, with the aim of discovering how many of them could fairly and reasonably be classed as postoperative or postanesthetic troubles. Total patients examined, 344; women, 220 (or 64 per cent.); men, 124 (or 36 per cent.). Instances of neurasthenic or mental disorders following operation or anesthesia, thirty-one (or 9 per cent., of the total patients examined); women, twenty-nine (or 94 per cent. of the postoperative cases); men, two (or 6 per cent. of the postoperative cases). The operations in these cases varied widely, from the most trifling surgical intervention, such as ocular tenotomy, straightening of the nasal septum or dilatation of the cervix uteri, up to total hysterectomy and ovariotomy. The worst and most persistent examples of nervous disorder have not by any means always followed the most serious operations. No doubt, says Mitchell, as in other neurasthenic conditions, a certain constitutional or temperamental predisposition is required as a precedent, and one cannot make a rule excluding this as one of the causes, as one would in judging of purely traumatic neuroses; but Mitchell tried to exclude from the list those in which there were marked and distinct causes other than operative in addition to the neurasthenic predisposition. Mitchell says that should the question of surgical treatment of a neurasthenic person arise, much more than the ordinary care must be exercised in deciding on operation. Wise practice will choose any other route than a surgical one, however roundabout it may make the journey. The only sufficient reason for an operation in a neurasthenic is that the procedure is one which would be absolutely demanded were the patient in perfect nervous health. The physician and the consulting surgeon must never be deceived into undertaking an operation for the relief of neurasthenic symptoms, unless these symptoms would imperatively require surgical measures in a person not nervous. An operation may relieve neurasthenic symptoms; it will not cure the patient, and there is a good chance that a few months will see her worse than ever, having gained nothing but a new experience, and very likely an exchange of old symptoms for new ones. One should, he says, think twice before advising an operation on a neurasthenic, and having thought twice it will often prove best to think a

third time, and then not operate. Above all, the operation should never be recommended with the idea or even the hope that if successful it will cure the neurasthenic. The neurasthenia may be no worse after than before; but most assuredly it will very seldom be cured.

82. **Nitrogen Metabolism in Duodenal Alimentation.**—In the three cases of duodenal alimentation studied by Einhorn and Rosenbloom the absorption of the nitrogen of the food took place to a normal extent. Nitrogenous catabolism, as measured by the quantities of urea and ammonia that were excreted, was normal in degree. All of the patients had a positive nitrogen balance throughout the duodenal feeding periods.

83. **Dilatation Test for Chronic Appendicitis.**—To make this test a colon tube is passed 11 or 12 inches into the rectum and air injected by means of an atomizer bulb. If, as the colon distends, pain and tenderness to finger-point pressure become apparent at McBurney's point, there is appendicitis. Bastedo has compared the test in a number of instances with the Rovsing test and finds this much the more certain; but at times, after moderate dilatation with air, the Rovsing method of forcing the air back into the cecum may be used with advantage. The indication for the test is a suspected chronic or latent appendicitis, or any persistent digestive or abdominal disturbance, in which no cause can be found for the trouble. Six cases reported by Bastedo are said to illustrate the positive findings of the dilatation test. In the use of the test during the last four years he has had no case in which the test was positive and the operation findings negative. But in two out of all of his cases, the negative finding of the test was followed within six months by a typical attack of appendicitis, and the test was, therefore, presumably at fault. With very few exceptions, therefore, the test has proved accurate, and Bastedo believes that it may well serve as a guide to the necessity for operation, particularly in the three classes of cases mentioned, viz., suspected chronic appendicitis, persistent gastro-intestinal or abdominal disturbance of unknown cause, and appendicitis versus ovarian or tubal inflammation.

86. **Purpura Hemorrhagica.**—The interesting and unusual circumstance connected with this case is the fact that there were no evidences of any integumentary lesions until the constitutional symptoms had practically run their course and had almost caused a fatal termination.

90. **Granuloma Pyogenicum.**—Sutton regards it as being very probable that granuloma pyogenicum is the result of a staphylococcic infection of the upper corium, and that the involvement of the superficial structures is not directly concerned in its production. The irritation set up by the bacteria and their products gives rise to excessive cell proliferation, and the resulting granulation tissue is forced upward through the opening in the epidermis through which infection of the deeper tissues originally took place.

91. **Belladonna Poisoning.**—Knowles reviews a number of cases to show that more or less generalized eruptions not only occur from the internal administration of belladonna or its alkaloid, atropin, but also from absorption through the skin of local applications of the same. The skin does not have to be broken or denuded of epidermis for absorption to take place; the symptoms of poisoning, however, develop much sooner if such is the case. The great majority of the cases exhibit an erythematous or scarlatinal type of eruption, which is more frequently found on the face and the upper portion of the body, but in a fair number of cases the outbreak is generalized. Gangrenous, purpuric and eczematous eruptions have been reported. The author describes a unique, or at least a very unusual, type of outbreak. Although in a great many instances severe symptoms of poisoning are present, the eruption may be unaccompanied by other manifestations of drug absorption. Mydriasis is a quite constant phenomenon; in a few cases, however, the pupils were only slightly enlarged, entirely normal, or unilaterally dilated. The prognosis is favorable; only one death occurred in this large series of cases. Belladonna or atropin may produce a local eruption from the local irritant effect.

92. **Examination of the Blood for Bacteria.**—It is stated by Fried and Sophian that bacteria can be found microscopically in the blood of a large majority (97 per cent.) of cases in which their presence has been demonstrated by blood-culture. In a number of the cases (12 in 132, about 9 per cent.) bacteria were demonstrated in the blood, by them, which had been found sterile by means of blood-cultures taken according to the methods now in vogue in the laboratory. Microscopic examination of the blood with all the methods that have so far been used was not of service in cases in which the presence of Gram-negative organisms was suspected.

93. **Digestion in Fever.**—The average reduction of digestion during fever was found by Nichols to range not over 5 to 10 per cent. This falling off is so small as for practical purposes to be almost negligible; indeed, the digestion of animal and mixed food in fever is quite as good as that of vegetable food in health. The belief in a great impairment of digestion in fever, Nichols says, is an idea based on vague impressions and dogmatic assumptions that has come down to us from the dark ages of medicine. The reduction actually shown by exact observations is so small as to dispel any fear, in general, of fever patients being unable to digest and absorb an adequate amount of the nutriment offered them, or to necessitate, on that account, any diminution of the diet.

Virginia Medical Semi-Monthly, Richmond

July 21

96 The Mosquito and Pellagra. C. Thorington, Montgomery, Ala.
97 Anesthesia in Rectal Surgery. L. Eliot, Washington, D. C.
98 Some Mastoid Experiences. C. M. Miller, Richmond, Va.
99 Experiences with Grave Cases of Typhoid Acetonuria. J. H. Hiden, Pungoteague, Va.
100 Prophylaxis of Typhoid. D. O. Foley, Mt. Jackson.
101 Unusual Effects of Potassium Bromid and Passion Flower. S. Harnsberger, Catlett, Va.
102 Case of Mastoid Operation Under Local Anesthesia. J. A. White, Richmond.

Canadian Medical Association Journal, Toronto

July

103 *Origin and Development of the Canadian Medical Association. G. E. Armstrong, Montreal.
104 *Present Status of Surgery in Canada. A. Primrose, Toronto.
105 *Scarlet Fever. A. E. Vipond, Montreal.

103 and 104. Abstracted in THE JOURNAL, July 15, 1911, p. 244.

105. **Scarlet Fever.**—Having come to the conclusion that the specific organism of scarlet fever would probably be found in the lmyph-nodes of the body, Vipond confined his work entirely to the glandular system. April 14, 1911, he obtained from the body of a child, 4 years of age (who died of scarlet fever), a number of enlarged axillary and inguinal lymph-nodes, from which he obtained the lymph. This lymph, under strict antiseptic conditions was inoculated into a slant of agar, blood-serum and broth. Within a few hours, a mixed growth developed on the different media, part of which proved to be staphylococcus aureus; and part, a raised white growth, which on examination proved to be bacilli. This bacillus, when isolated, proved to be of rapid growth, and grew steadily on different media, including dextrose-agar, glycerin-agar, blood-agar, plain-agar, blood-serum and broth. On dextrose-agar a well-developed growth was observed within twenty-four hours. From five cases a pure culture was obtained, two from inguinal nodes, one from the axillary nodes, and two from anterior, cervical nodes. Two were post-mortem cases. Having obtained the bacillus which he regards as the specific organism of scarlet fever, Vipond decided to inject a broth culture into a monkey, with the hope that the animal would develop scarlet fever. In this he was not disappointed. The bacilli have been inoculated into five monkeys and two rabbits. Typical scarlet fever has developed in all, including rash, enlarged lymph-nodes and desquamation. No suppuration in any one instance took place at the point of inoculation. Streptococci would likely have had this effect. The same bacilli have been recovered from the lymph-nodes in each instance, and further, the typical growth has developed on the different media. Vipond also succeeded in producing typical scarlet fever in a monkey and in a rabbit by direct contagion from monkeys and rabbits suffering from that disease and recovered the same bacillus from the inguinal nodes of these.

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Medical Fortnightly, St. Louis

July 25

106 Indications for Nephrectomy. E. O. Smith, Cincinnati.
107 Treatment of Puerperal Sepsis With Reference to Antistreptococcus Serum. C. A. Bolce, Washington, Ia.
108 Mental Strain. D. L. Field, Jeffersonville, Ind.
109 In the Twilight. C. E. Warren, North Easton, Mass.

Journal of American Public Health Association, Columbus, O.

June

110 Present Organization and Work for the Protection of Public Health in Canada. F. Montizambert, Ottawa, Ont.
111 Canadian Commission of Conservation and Public Health. C. A. Hodgetts, Ottawa, Ont.
112 *Organization of the Sanitary Service in the Federal District, Territories, Seaports and Principal Frontier Cities of the Mexican Republic. E. Liceaga, Mexico City, Mex.
113 *Studies on Self-Purification of Streams. G. F. Ruediger, Grand Forks, North Dakota.
114 *Resistance of Small-Pox Vaccine to the Coal Tar Disinfectants. C. T. McClintock and N. S. Ferry, Detroit, Mich.
115 *Quarantine or Isolation in Scarlet Fever, Which? F. G. Curtis, Newton, Mass.
116 Tuberculosis in Immigrants. P. H. Bryce, Ottawa, Canada.
117 Venereal Disease and Its Influence. J. H. Cunningham, Boston.
118 Ophthalmia Neonatorum: Progress in Prevention. H. C. Greene.

112. Abstracted in THE JOURNAL; Sept. 24, 1910, p. 1137.

113. Abstracted in THE JOURNAL, Sept. 17, 1910, p. 1043.

114. **Resistance of Small-Pox Vaccine.**—It appears from the investigations made by the authors that the large majority of the coal tar disinfectants (phenol, cresols and the like) do not destroy the virulence of vaccine virus in ½ per cent. solutions at five hours' exposure, while with this strength and length of time it is probable that these disinfectants would destroy all non-spore-bearing bacteria.

115. **Quarantine or Isolation in Scarlet Fever.**—From our present knowledge it appears that scarlet fever is a disease that is transmitted by contact and not by fomites; that the scales of desquamation play very little, if any part, in the transmission of contagion, the chief danger lying in the buccal, nasal and aural secretions; and that the release of each case should be decided on its merits. Curtis advises that in all communicable diseases, it is better to remove each patient to a hospital, but should this be impossible, it is better to isolate the patient and allow the other members of the family to continue their regular vocations, educational and otherwise, as long as the isolation is maintained to the satisfaction of the board of health.

Vermont Medical Monthly, Burlington

July 15

119 Salvarsan in Treatment of Syphilis. C. B. Keenan, Montreal.
120 Hysteria. F. W. Bears, Syracuse, N. Y.
121 History of Syphilis. C. S. Scofield, Richmond.

Archives of Internal Medicine, Chicago

July

122 *Meningococcus Endocarditis, With Septicemia. R. L. Cecil and W. B. Soper, New York City.
123 *Physiologic Investigation of the Treatment in Hemoptysis. C. J. Wiggers, Ann Arbor, Mich.
124 Postanesthetic Glycosuria. P. B. Hawk, Urbana, Ill.
125 Postanesthetic Glycosuria of Surgical Patients. J. M. Swan, Watkins, N. Y.
126 Malignant Tumors of the Adrenal. B. F. Davis, Chicago.
127 *Hemochromatosis. T. P. Sprunt, Baltimore.

122. **Meningococcus Endocarditis with Septicemia.**—The cases of meningococcus endocarditis studied by Cecil and Soper have brought out the following interesting facts: 1. The meningococcus, in spite of its affinity for the meninges, may at times become lodged on the endocardium, with the production of an acute vegetative endocarditis. In this respect it resembles most of the other pathogenic bacteria, which, while showing a predilection for some particular organ or tissue, may occasionally produce serious lesions in other parts of the body. 2. The symptoms and pathologic anatomy of meningococcus endocarditis correspond to those which characterize malignant endocarditis of streptococcus or pneumococcus origin. 3. Meningococcus endocarditis may or may not be associated with cerebrospinal meningitis. 4. The portal of entry for the organism in meningococcus endocarditis is probably the upper respiratory tract. It is particularly interesting to note that the avenue of infection is the same as that generally accepted as the portal of entry for streptococcus endocarditis on the one hand, and for meningococcus meningitis on the other. 5. The occurrence of primary meningococcus endocarditis with meningococcus septicemia furnishes evidence in favor of a hematogenous mode of infection in epidemic cerebrospinal meningitis.

123. **Treatment in Hemoptysis.**—Early in the course of hemoptysis, when the breathing has not altered except for an occasional cough, Wiggers says, one is dealing practically with a normal subject, and the object of paramount importance is to promptly reduce the bleeding by such drugs as lower the pressure within the pulmonary circuit. Investigation by Wiggers shows (1) that this cannot be accomplished by vasomotor drugs, such as nitroglycerin or nitrites, and (2) that cardiac depressants, such as chloroform and pituitary extracts, must be resorted to. If hemorrhage has continued until the heart is very rapid and the respirations accelerated, deep and forcible, it is an indication (1) that the heart and blood-vessels no longer react in a typical manner to certain drugs, and (2) that the anemia of the cerebral centers is being felt. During this stage it is important that the blood-supply of the brain be not reduced by the drugs which check hemoptysis. Hence, the drug that combines an ability to elevate systemic arterial pressure and simultaneously to lower that in the pulmonary circuit is the ideal physiologic agent to employ during this stage. In the entire gamut of drugs investigated, pituitary extract is the only one that possesses this fortunate combination of actions.

127. **Hemochromatosis.**—Three cases are reported by Sprunt. The first case is one of simple hemochromatosis with the complication of tuberculous peritonitis forming a prominent part of the clinical picture. The other two cases are quite typical of the more frequently described form usually designated as bronzed diabetes. In all three cases there were the associated signs of asthenia, enlargement of the liver, and skin pigmentation which served to make the diagnosis clear in the two cases in which diabetes was present. In one case without diabetes, the diagnosis was made more difficult by the presence of the tuberculous peritonitis, but in this case, too, the association of the signs mentioned was considered very suggestive of hemochromatosis. The onset in the first case was rather insidious. It was more abrupt in the other two, the first symptoms being those of diabetes. The duration of the disease in each case after the appearance of the first symptoms was twelve, ten and five months, respectively. In all the cases there was an increase in those pigments present in less degree physiologically. There was a striking accumulation of fine yellow pigment granules in the tubules of the testes and epididymes and in the vas deferens and seminal vesicles in the third case. In each case there was an increase in the connective tissue of the liver, pancreas, lymph-nodes and spleen. In addition, this occurred to a slight extent in the heart muscle in one case and in the prostate and testicles in another. One case suggested a slow deposition of pigment for a comparatively long time, while the picture in the third case gave one the impression of a rapid continuous process.

Woman's Medical Journal, Cincinnati

July

128 Prevention of Infant Mortality. S. H. Scott, Des Moines, Ia.
129 Surgical Progress. K. Harped, Boone, Ia.
130 Relation of Nasal and Ocular Hygiene to Neurasthenia. I. M. Scott, Waterloo, Ia.
131 Infection and Its Prophylaxis. G. F. Jerger, Waterloo, Ia.
132 Microscope and Its Place in Modern Diagnosis. P. B. Hoeve, Des Moines, Ia.
133 Medical Practice in the Orient. J. G. Christ, Ames, Ia.
134 Internal Medicine. J. M. Donahue, Burlington, Ia.
135 Eugenics. P. Townsend-Hanson, Marshalltown, Ia.

Boston Medical and Surgical Journal

July 20

136 *Present Position and Value of Exploratory or Operative Diagnosis. M. H. Richardson, Boston.
137 A Few Thoughts and Suggestions Based on Twenty-Five Years' Experience With Tuberculosis. V. Y. Bowditch, Boston.
138 *Mobilization of Stiffened Joints. R. B. Osgood, Boston.
139 Clinical Tests for Apraxia and Their Value in Diagnosis of Brain Disease. I. H. Coriat, Boston.
140 *Soluble Silver Oxid, Its Use in Medicine. T. W. Schaefer, Kansas City, Mo.

136. **Exploratory or Operative Diagnosis.** — Richardson emphasizes that exploratory diagnosis should be restricted in its application to those cases in which certainty of diagnosis is essential to relief, and in which, from lack of surgical remedy, error means disaster or death.

138. **Mobilization of Stiffened Joints.**—The results obtained in three cases reported by Osgood seem to show the usefulness of Baer's membrane in preventing union after complete bony ankylosis.

140. **Soluble Silver Oxid.**—Silver hydroxid is prepared when an alcoholic solution of potassium hydroxid (caustic potash) is added to an alcoholic solution of silver nitrate at a low temperature, about 40 C. Silver oxid is soluble in much distilled water. Schaefer adds silver oxid to pure distilled water, shaking the mixture frequently and thoroughly, after letting it stand for some time, and then percolating it through a wad of asbestos in a percolator. About 1 gm. of silver oxid is soluble in 3 liters of distilled water, forming a perfectly transparent and quite stable solution of silver hydroxid. This solution of silver hydroxid has a strongly metallic taste, and is, like thallium hydroxid, strongly alkaline, and precipitates from many metallic salts the oxids and hydroxids of the respective metals, and decomposes easily a solution of sodium chlorid with the formation of sodium hydroxid (caustic soda) and insoluble silver chlorid. One advantage over the ordinary salts of silver, like that of the nitrate, for instance, Schaefer says, is that this preparation of soluble silver does not contain an acid to form a salt. This form of a silver preparation is suggested to those who have faith in the therapeutic efficacy of silver in its various combinations.

Medical Record, New York

July 22

141 Constant Occurrence of Mixed Infections. W. H. Thomson, New York City.
142 Treatment of Diabetes. H. Stern, New York City.
143 Nervous Disorders and the Neurologist in Relation to the Profession and Public. T. A. Williams, Washington, D. C.
144 *Cardiospasm in Infants. W. G. Morgan, Washington, D. C.
145 Surgical Indications in Lesions of the Large Intestine. R. S. Fowler, Brooklyn.
146 Effect of Salvarsan on Syphilitic and Metasyphilitic Affections of the Eye and on Apparently Healthy Eyes of Syphilitics. M. Rosenbaum, New York City.

144. Abstracted in THE JOURNAL, May 27, 1911, p. 1607.

Lancet-Clinic, Cincinnati

July 22

147 Extraction of Cataract in Capsule. C. King, Cincinnati.
148 Thirteen Cases of Cataract Extracted in Capsule. V. Ray, Cincinnati.
149 Parinaud's Conjunctivitis. R. Sattler, Cincinnati.

New York Medical Journal

July 22

150 The New York Academy of Medicine. C. L. Wheeler, New York.
151 Laboratory Findings in Neurological Manifestations. D. M. Kaplan, New York.
152 Fracture of Antero-External Portion of Lower Condyle of Tibia, Complicating Pott's Fracture. M. Leale, New York.
153 Some Medical Gossip Pertaining to the Last Illness of Queen Anne of England. C. G. Cumston, Boston.
154 Early Diagnosis of Cancer of the Breast. A. E. Isaacs, New York.
155 Papular Eruptions of the Buccal Mucous Membrane. H. K. Gaskill, Philadelphia.
156 Etiology, Prophylaxis and Treatment of Postanesthetic Vomiting. J. Halperin, New York.
157 Operation for Progressive Spinal Deformities in the New York Medical Journal for May 27, 1911. W. G. Elmer, Philadelphia.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

July 8

1 *Necessary Influence of Medical Profession in Home, School and State. C. Dukes.
2 *Mechanical Control of Pneumothorax During Operations on Chest. H. M. Davies.
3 Treatment of Tuberculosis by Radioactive Iodin and Menthol. L. Robinson.
4 *Cesarean Section: Report of Ten Cases. C. E. Purslow.
5 *Treatment of Excessive Vomiting of Pregnancy. J. H. Martin.
6 Treatment of Aortic Aneurysms. A. Abrams.
7 *Hypertrophied Papillæ of Morgagni Causing Rectal Symptoms. A. C. Magarey.

July 15

8 *Three Cases of Cardiac Failure Without Evident Dilatation of the Heart. T. S. Wilson.
9 Obliterative Endo-Aneurysmorrhaphy for Popliteal Aneurysm. A. E. Barker.
10 *Anthrax Treated by Sclavo's Serum. W. M. Fergusson.
11 *Intramuscular and Intravenous Injections of Antimony in Trypanosomiasis. C. N. B. Camac.
12 Treatment of Serum Sickness in Diphtheria. J. R. Keith.
13 Absorption of Iron. D. G. M. Munro.
14 *Treatment of Pulmonary Tuberculosis with Phenol Injections. H. Vallow.
15 *Fifty Cases of Trachoma Treated with Carbon Dioxid Snow. G. M. Harston.
16 *Administration of Diphtheria Antitoxin by the Mouth. G. I. Cumberlege.
17 Intrathyroid Hemorrhage Followed by Acute Dyspnea and Death. S. G. Champion and C. B. M. Aldridge.
18 Discrimination of Color. F. W. Edridge-Green.
19 Amyl Nitrite in Menorrhagia in Virgins. F. Hare.

1. **Necessary Influence of Medical Profession in Home, School and State.**—In considering the welfare of youth, Dukes says the physical conditions which are necessary for mental effort, and the modes of securing or thwarting those conditions, have not hitherto received sufficient recognition. The medical and hygienic inquiry insisted on for all children in all classes of schools is related, not merely to the promotion of a sound intellectual state, the easier acquisition of knowledge, the clearer perception of its application, and the gradual appreciation of method, in place of mechanical and unvaried rules, but also bears a definite relation to the moral development of character. So that the medical examination is a valuable asset in the hands of the educator, which should be utilized from the beginning of school life. Dukes would have the medical examiner in possession of the medical history of the previous health of the child, together with all the important items of the family history. For, although the child may be sound, yet he may be vulnerable in some special way from family predisposition or previous illness, and require protective measures. There is one method, and one method only, Dukes says, that would remove many of the unreasonable disabilities in school life—the possession by the educator of a reasonable knowledge of the elements of physiology and hygiene. But, if the teaching of hygiene in schools is to prove serviceable, it must be carried into practice in the daily life at school.

2. **Mechanical Control of Pneumothorax.**—The main features of Davies' hyperatmospheric machine are an air chamber working on the principles of a gasholder and fed from compressed air and oxygen cylinders; the air in this chamber is at a greater pressure than that required in the bronchial tubes, but after it leaves the chamber passes through a governor and the pressure is there regulated to the required amount; it then passes through Alcock's chloroform box, then through a heating chamber, and so into the trachea by an intubation tube. The expired air leaves the trachea again by the exit pipe of the intubation tube and enters the expiratory chamber, where the pressure is again regulated by a weight valve.

4. **Cesarean Section.**—All the mothers recovered in the ten cases in which Purslow operated. The children were all born alive, with one exception. In this case the patient had been in labor many hours, and forceps had been tried unsuccessfully. The child was known to be dead, as the cord was prolapsed and pulseless, and the reason that Cesarean section was done rather than craniotomy was that the head was high above the pelvic brim and the uterus in a state of violent tetanic contraction, which appeared to presage rupture; on examining the uterus after the removal of the child, an extensive effusion of blood under the peritoneum on its right lateral aspect seemed to show that rupture was already taking place, and hysterectomy was performed. Of the children born alive, two died in hospital, one on the day of its birth, and the other, which was probably premature, on the twenty-third day from diarrhea and vomiting. Of the women operated on, five were in labor at the time of operation, and of these, in two cases the membranes were ruptured; the other five were not in labor.

5. **Excessive Vomiting of Pregnancy.**—The efficacy of drugging in hyperemesis gravidarum is doubted by Martin. He prefers dieting because of the good results obtained in sixteen

cases. Briefly, his mode of procedure consists of gastric lavage, dieting and elimination. For several days the patients were put on peptonized milk and milk and soda, and were thereafter given light diet. No hard-and-fast rule was laid down as to the day of treatment on which the patient was advanced to a light or full diet; each case was considered separately and dieted accordingly. The patients were not allowed up until they had been on light diet for two days. A powder containing 1 grain of mercury-with-chalk powder and 3 of sodium bicarbonate was given thrice daily. For chronic constipation, in conjunction with the above powder, Martin found magnesium sulphate in hot water, every second morning the best aperient. If a satisfactory motion was not obtained, then a soap and water enema was given. The septic condition of the mouth (which was present in every case) was treated with a mouth wash of phenol solution 1 in 80, used frequently and always immediately before and immediately after food. The patients were encouraged to drink copiously of milk and soda, weak tea and imperial drink. This treatment was quite successful in the sixteen cases, the average duration of residence in the hospital being seventeen days. One patient was treated in hospital for about ten days with the text-book drugs without improvement. Martin is of the opinion that in hyperemesis gravidarum, as in eclampsia, prophylactic treatment is of prime importance, and recommends the following as the important points: 1. Bowels to be moved at least once per diem. 2. Prevention of oral sepsis. 3. Good plain well-cooked food, daintily served at regular hours. 4. Kidneys and skin to be kept active. 5. Gentle exercise in the open air daily if the weather is at all suitable, and a good supply of fresh air night and day.

7. **Hypertrophied Papillæ of Morgagni Causing Rectal Symptoms.**—The papillæ of Morgagni are situated at the anorectal junction, and though absent in the majority, are yet present in a considerable proportion of individuals. The symptoms attributed by Martin to these hypertrophied papillæ are irritation, pain, sensation of mass in the rectum. He has found cauterization to be the simplest, quickest and most effective method of destroying the papillæ.

8. **Cardiac Failure.**—The first case cited by Wilson showed heart weakness with diminution in the size of the cardiac area from damage to the heart muscle from the toxins or microorganisms of acute rheumatism. In this case the left ventricle was rather weaker than the right, and the latter showed a slight amount of the adolescent type of dilatation and a pulmonary artery murmur. The second case was one of the muscular failure of the heart, without evident dilatation, due to malnutrition presumably from atheroma of the coronary arteries. In this case the left ventricle was more affected than the right. The third case was exceptionally interesting owing to the limitation of fatty degeneration to the right ventricle as well as from the absence of physical signs of cardiac failure, except those associated with a relative emptiness of the heart and great vessels, and the weakness of the cardiac sounds, especially those heard over the right ventricle.

10. **Sclavo's Serum in Anthrax.**—The chief points of interest about Fergusson's case are: 1. The apparently long incubation period, ten days, if counted from the date that the patient got the blood of an anthrax-infected animal over his hand. 2. The rapid amelioration of the symptoms after the injection of the serum. Recovery without excision of the pustule. In most cases of recovery after treatment by Sclavo's serum the patients have been treated by excision as well.

11. **Antimony in Trypanosomiasis.**—The preparation used by Camac was metallic antimony in an oily medium. Ten minims, representing ½ grain, of the precipitated metallic antimony were injected into the muscles of the left buttock. Within an hour the patient experienced great local discomfort, which increased till the whole buttock was greatly swollen, painful and tender to such a degree that the least pressure of his body on the bed, where he was compelled to remain, caused him to call out with pain. Even with such cause removed the pain was so intense that morphin had to be used frequently. This condition, accompanied with sleeplessness, lasted for ten days, when the swelling, pain and tenderness gradually subsided, and within fourteen days from the date of injection the patient was able to walk about, and two days later all inconvenience had disappeared. When the area of swelling had lost the tenderness sufficiently to allow of palpation, it was found to be tense, hard, and fairly sharply defined to a circular area of about 18 to 20 cm. in diameter. There was no necrosis. For intravenous injection, the preparation used was antimony sodio tartrate. One-sixth of a grain in normal saline was injected into a vein of the arm. From Nov. 10, 1909, to Feb. 1, 1910, thirteen injections were given with intervals of about four days; on one occasion there was an interval of sixteen days, on another there was an interval of eight days. The thirteenth injection was received at about 11 a. m., Feb. 1, 1910.

About twenty minutes after leaving the laboratory, while on his way home the patient was suddenly seized with nausea and great weakness. He managed to reach his home unaided. Before Camac could reach him he had had a chill and violent abdominal pain. When Camac saw him he was greatly prostrated, complained of intense headache, and had a temperature of 103.6 F. This lasted five or six hours, when it subsided to normal. The blood was negative for trypanosomes. The urine showed great excess of indican, otherwise it was normal. For twelve days the weakness and abdominal distress continued, and on the thirteenth day from the former paroxysm he had, for six hours, a similar but somewhat less severe attack. Trypanosomes were not found at the time of this second fever, and have been absent on all subsequent examinations. Blood and spinal fluid inoculations into monkeys, rats and mice have been attended by negative results. From Oct. 9, 1909, to Jan. 31, 1910, the patient took daily by the mouth 1½ to 2 grains of antimony lithium tartrate, in 3 pints of water, in addition to the intravenous injections.

14. **Phenol Injections in Pulmonary Tuberculosis.**—Vallow injects 0.1 to 0.2 c.c. of a 1 per cent. solution of pure phenol in sterilized water once each week between the shoulders. He believes that early cases treated by this method give the best results.

15. **Carbon-Dioxid Snow in Trachoma.**—In forty of the fifty cases Harston effected a cure in from five to eighteen applications of carbon-dioxid snow. Three patients did not return and seven are still under treatment. At the first application the snow is applied to each part for fifteen seconds; later, when the patient is accustomed to the treatment, for as long as twenty, twenty-five and thirty seconds. The pain caused passes off at the end of two minutes, and is infinitesimal compared to the pain caused by bluestone, silver nitrate and such like caustics. The disease is considerably shortened in its course, and the resulting scarring is considerably less than when other caustics have been used.

16. **Administration of Diphtheria Antitoxin by Mouth.**—The points which Cumberlege believes to be in favor of oral administration of diphtheria antitoxin are as follows: Results are obtained within a few hours after being given, a far smaller dose is required (Cumberlege has never given more than 4,000 units at a time; a dose of 2,000 units, followed up, if necessary, by a further dose, is the usual amount given). By giving it in this way, it is possible to give continued dosage by making a mixture and ordering it to be given every two or four hours as the case may be. Another point in its favor is that no patient treated by him by mouth has shown signs of serum sickness, whereas either a rash or joint pains, or both, has nearly always occurred after the few injections given.

Lancet, London

July 15

20 Clinical Study of Cardio-Vascular Degeneration. J. M. Bruce.
21 Treatment of Tuberculosis and Hemoptysis by Artificial Pneumothorax. C. Lillingston.
22 Four Cases of Tuberculosis in Which Artificial Pneumothorax Was Induced. L. Colebrook.
23 Case of Artificial Pneumothorax. S. V. Pearson and A. de W. Snowden and C. Lillingston.
24 Case of Torsion of the Pedicle of a Uterine Fibroid. C. A. Morton.
25 Case of Acute Inflammation of Thyroid. C. W. Bonney.

Journal of Tropical Medicine and Hygiene, London

July 1

26 Estivo-Autumnal Parasite. H. M. James.
27 *Etiology of Blackwater Fever. G. J. Pirie.
28 Development of Trypanosoma Gambiense in Glossina Palpalis. Sir D. Bruce.

27. **Etiology of Blackwater Fever.**—The interesting points in the four cases cited by Pirie were: (1) The finding in each case of subtertian rings in the peripheral blood of the patients, before the onset of the hemoglobinuria. (2) In each case quinin was taken or given in order to treat the malaria, also before the hemoglobinuria when a small dose of quinin (2½ gr.) was given. (3) The typical malarial temperature chart of Case 4 during the continuance of the hemoglobinuria. There were no malarial parasites at this time in this patient's peripheral blood, but it looks almost certain that sporulation was taking place in some of the internal organs. In all these cases no malarial parasites, though carefully looked for, were found after the onset of the hemoglobinuria. Each of these patients had the appearance of having been well saturated with malarial poisoning. The first and third case had not taken quinin, or had taken it very irregularly. Number two had not used his mosquito net and had most probably (though he said the contrary) taken his quinin irregularly. Case 4 had taken 5 grains of quinin daily. All of these patients developed blackwater fever more or less severely. It appears to Pirie to be more than a mere coincidence, that in each of these cases the onset of the hemoglobinuria should have followed the attempt to treat an attack of malarial subtertian fever with quinin. He thinks that only those persons whose resistance to the hemolytic action of the malaria parasite has been reduced by the continuous sporulation of the parasite in their systems are susceptible, and that in those persons a dose of quinin may be the actual exciting cause. This condition of susceptibility is induced by neglect of, or irregularity in, the taking of the daily dose of 5 grains of quinin. In cases in which one has been assured that 5 grains of quinin have been taken regularly every day, Pirie suggests that it may be that certain types of constitution are so peculiarly susceptible to malarial infection that the 5 grains of quinin daily is not sufficient to prevent the continuous sporulation of the parasite in the system, though that dose may be sufficient to make the patient take to bed. These persons get anemic and debilitated, and gradually develop that unstable condition of the red blood-corpuscles that may ultimately end in an attack of blackwater fever.

Glasgow Medical Journal

July

29 Injury of the Spinal Cord Due to Rupture of Intervertebral Disk During Muscular Effort. G. S. Middleton and J. H. Teacher.
30 Tuberculosis Treated by Intravenous Injection of Ethereal Solution of Iodoform. T. W. Dewar.
31 Case of Acute Pulmonary Edema. A. W. Harrington and J. L. Cochrane.
32 Case in Which Broadbent's Sign Was Present Though No Pericardial Adhesions Existed. A. R. Paterson.

Journal of Obstetrics and Gynecology of British Empire, London

June

33 Nine Pubiotomies Performed in Rotunda Hospital During Mastership of Dr. Hastings Tweedy. J. R. Freeland.
34 *New Method of Performing Colporrhaphy. W. B. Bell.

34. **Colporrhapy.**—In Bell's method, after an oval-shaped area (about 1½ or more inches broad in the widest part) of vaginal wall has been removed, the underlying bladder is entirely separated from the remaining anterior vaginal wall. All bleeding points are then carefully tied. Mattress sutures of 40-day chromic catgut are everted. The sutures, when tied, cause large, raw under-surfaces of vaginal wall to be brought into contact, and form a ridge running the whole length of the anterior vaginal wall. Bell cautions that the mattress sutures should not be tied too tightly, nor should the anterior vaginal wall be stretched too much when the operation is completed. If it be found after suturing that the everted edges project more than ½ inch they may be trimmed down. Finally, a running overhand stitch of fine catgut may be used to unite the free margins and to prevent the exposure of a raw edge. The appearance, some months after operation, of the ridge, which widens slightly, resembles that of a normal anterior column.

Journal of Laryngology, Rhinology and Otology, London

July

35 Ocular Symptoms Produced by Nasal Disease. H. H. B. Cunningham.
36 Etiology and Operative Cure of Collapse of the Alæ Nasi. M. Halle.

Annales de l'Institut Pasteur, Paris

June, XXV, No. 6, pp. 433-496

37 *Experimental Research on Cholera. J. Choukevitch.
38 *Vaccination Against Cholera and Typhoid. E. Metchnikoff, Besredka and H. Vincent.
39 Sleeping Sickness and Its Mental Symptoms. (Démence trypanosomiasique et démence paralytique.) G. Martin.
40 Virulence of the Human Pneumococcus for the Mouse. (Etudes sur le pneumocoque.) C. Truche, A. Cramer and L. Cotoni.
41 Influence of Phenol on the Virus of Rabies. W. Sawtschenco.

37. **Experimental Research on Cholera.**—Choukevitch reports experiments on rabbits which failed to show that vaccination had any protecting influence against cholera by the intestinal route. His research further gave negative results in regard to the nitrites as an essential factor in development of cholera, and also in regard to the anticholera cocci of Nitsch.

38. **Prophylaxis of Cholera.**—Metchnikoff thinks that the present methods of vaccination against cholera are bound to fail as intoxication from the cholera toxins in the intestines cannot be neutralized by the methods effectual in infections. He reviews the total field of anticholera vaccination to date, saying that the statistics of the vaccination against cholera on a large scale at St. Petersburg and in India are misleading, as the vaccinators were careful to vaccinate only those least liable to contract the disease, skipping the young, the elderly and those with chronic disease and, according to directions, vaccinating only the healthy "so as not to discredit the method," and the records are defective of the vaccinated who contracted cholera. He insists that the results of experiments on animals should be given greater credit in applying the conclusions to man, and that the constant failure of Choukevitch's experimental anticholera vaccination and of Metchnikoff's attempts to immunize chimpanzees against typhoid fever should be given due weight. He relates that he has recently had a personal experience which has convinced him anew that hygienic measures are reliable as the safest and most certain means of warding off typhoid and cholera. His manservant, who prepared his breakfast and resided in the house and was the husband of the maid-servant, contracted typhoid fever. As Metchnikoff had never had typhoid he considered the question of being vaccinated but concluded to rely on hygienic measures alone. No food was served except articles that had been cooked, and an alcohol lamp or gas stove and a dish of boiling water ensured the sterility of the cup and plate and of the knife, fork and spoon. By these simple means the people in the house were protected against typhoid, no further case developing, and he is convinced that similar measures will prove equally effectual against all intestinal diseases. At St. Petersburg, he adds, boiling the drinking water protected people against cholera. Vaccination against intestinal disease should be reserved for exceptional conditions, as for forced marches in time of war. When vaccination is done it should be with scientific care to record the observations and make them resemble as much as possible exact scientific experiments. This chapter of human vaccinations, he says, is far from its definite conclusion, and experience is proving more and more the efficacy of careful and intelligent hygienic prophylaxis.

Vincent presents arguments against Metchnikoff's conclusions in regard to antityphoid vaccination, declaring that chimpanzees are so frail in a northern climate that their nonresistance may be ascribed to other causes, it being so difficult to keep monkeys alive in captivity at Paris. The results of the recent antityphoid vaccinations in America, he adds, are proving the efficacy of this method of prophylaxis which even Metchnikoff admits has a sound theoretic basis.

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Archives des Maladies du Cœur, etc., Paris

July, IV, No. 7, pp. 417-480

42 *Bradycardia in Course of Nephritis. D. Danielopolu.
43 Improved Methods for Determination of Arterial Pressure in Man. H. v. Recklinghausen.
44 Leukocyte-Count in Prognosis of Tuberculosis. (Valeur pronostique des rapports leucocytaires dans la tuberculose humaine.) R. Dupérié.

42. **Bradycardia in Nephritis.**—Danielopolu reports two cases of this kind. The first patient was a woman of 28 with acute nephritis coming on in the midst of good health; the pulse grew progressively slower, from 72 to 44, evidently the result of irritation of the regulating system of the heart, there being no auriculo-ventricular dissociation. The second patient had chronic nephritis and the bradycardia was likewise apparently of nervous origin in this case.

Bulletin de l'Académie de Médecine, Paris

June 27, LXXV, No. 26, pp. 681-732

45 Resonance in the Sound and Diseased Lung. (Nouvelle étude sur les résonances tympaniques non cavitaires du poumon malade et du poumon sain.) H. de Brun.
46 *Inflammatory Tuberculosis of the Glands with an Internal Secretion. (Tuberculose inflammatoire des glandes vasculaires sanguines.) A. Poncet and R. Leriche.

46. **Inflammatory Tuberculosis of the Glands with an Internal Secretion.**—Poncet comments on the striking fact that the viscera most often affected by inflammatory tuberculosis are most rarely the seat of the specific lesions of tuberculosis. This applies especially to the glands with an internal secretion; he describes conditions in each in turn, affirming that the conditions which are generally regarded as predisposing to tuberculosis are in reality the results of long established tuberculosis. The hypophysis, the adrenals, the ovaries, the thyroid—morbid changes in any of these from inflammation due to the tubercle bacilli may entail far-reaching consequences, but the prevailing conception to date has always put the cart before the horse, as it were, and he argues to prove that inflammation from tuberculosis in these glands is responsible for the insufficiency or excessive functioning which is manifested in so many different clinical syndromes. Insufficiency of the pancreas from a latent inflammatory tuberculous process, affecting the most vulnerable parts of the gland, that is, the islands of Langerhans, explains the shocking prevalence of tuberculosis among diabetics, recent statistics showing that fully 43 per cent. of all diabetics die of tuberculosis. It has been assumed that the lungs were rendered particularly non-resistant by the fact of the existing diabetes, but Poncet is convinced that the pulmonary phthisis is merely the terminal phase; the visceral tuberculosis is of long standing, and during years it has been insidiously at work engendering the disturbances and, by them, the nutritional disorder which others assume was merely preparing the soil for tuberculosis later. Obesity, infantilism, morbid sexual phenomena, etc., are all liable to be the manifestations of a loss of balance between the glands with an internal secretion or of direct injury of these glands from the effect of the unsuspected latent tuberculosis.

Obstétrique, Paris

June, IV, No. 6, pp. 593-680

47 The Corpus Luteum and Its Internal Secretion. (Le corps jaune.) J. L. Chirié. Commenced in No. 5.
48 *Depression of the Skull in New-Born Infant Corrected by Corkscrew. (Cas d'enfoncement du crâne redult par le tire-fond chez un nouveau-né.) E. Hauch.

48. **Obstetric Indentation of the Skull.**—In the case described there was an extensive depression of the frontal bone resulting from the application of forceps by a student. A little corkscrew, such as comes with certain makes of cologne, was sterilized and after the skin had been painted with tincture of iodin, the corkscrew was inserted into the bone with some little difficulty, but as soon as the tip had been introduced a single turn of the corkscrew was enough to give it a firm hold and the bone was thus readily drawn up into place. Hauch adds that shaving the skin and an incision are not necessary for the new-born. The dura separates readily from the bone and the procedure seems simple and harmless unless one of the rare blood-vessels in the dura should happen to be pierced, and this is easily avoided.

Presse Médicale, Paris

July 1, XIX, No. 52, pp. 545-560

49 Technic for Extension with Oblique Fractures. (L'embrochage des os dans les fractures du membre inférieur. Description d'un appareil réalisant la réduction et la contention des fractures obliques de jambe.) M. O. Lambret.
50 Operative and Peg Treatment of Fractures. (Maintien de la réduction d'une fracture. Résultats après 5 ans.) F. Jayle. (Technique d'Arbuthnot Lane.) P. Wiart.

Revue de Chirurgie, Paris

June, XXXI, No. 6, pp. 849-900

51 *Electric Burns of the Skull. (Brulures du crâne et nécroses des os du crâne par électrocution.) E. Quénu.
52 Pathogenesis of Painful Valgus Flat-Foot. (Sur la pathogénie du pied plat valgus douloureux.) R. Leriche.

51. **Electric Burns of the Skull.**—Quénu discusses the subject in general, especially the management of such cases as advocated by different writers, and then reports a case from his own practice in which he removed the sequestrum without waiting for it to be thrown off spontaneously; he is convinced that this method offers superior advantages. He cut away at once the burned soft parts and found the bone below white, dry and free from vessels, but without signs of injury. Six months later the young man returned with suppuration around the edge of the wound, but no signs of irritation of the meninges. The patch of bone was then excised; the dura below was the seat of pronounced external pachymeningitis. A flap of scalp tissue was drawn over the gap left by excision of the bone, and reexamination a year later showed that there had been regeneration of bone over part of the defect, as could easily be felt by palpation through the hair. Quénu's only regret was that he had not excised the sequestrum earlier. The principles for treatment are the same as for scalping accidents. The eschar is aseptic, to start with.

Revue de Médecine, Paris

June, XXXI, No. 6, pp. 433-512

53 *"Catching Cold" by the Tuberculous. (Les rhumes chez les tuberculeux.) C. Sabourin.
54 *Bard's Classification of Cases of Tuberculosis. R. Burnand.
55 *Spleen Treatment of Tuberculosis. (L'opothérapie splénique. Traitement spécifique de la tuberculose.) Bayle.
56 Intonation and Memory. (Note relative à la chanson du langage.) J. Lépine.
57 *Exophthalmic Goiter in Men. A. Pic and S. Bonnamour.

53. **When the Tuberculous "Catch Cold."**—Sabourin classifies in a number of groups the "false colds" of the tuberculous, that is, symptoms from sudden congestion from any cause, and which the patients ascribe to casually catching cold. In one case, for instance, a young man with Hanot's cirrhosis of the liver had profuse purulent expectoration each time as the initial symptom of recurring exacerbation of the liver trouble, while at other times a mild apical tuberculous process gave scarcely any signs of its presence. When the tuberculous actually have caught cold, the flora of the upper air passages appear in the sputum to such an extent that this is an unfavorable time for examining for tubercle bacilli. The effect of the "cold" on the tuberculous process varies, Sabourin declares, according to the care the patient takes of himself. An ordinary "cold" is an infectious catarrh following chilling of the skin, and the tuberculous who take care to harden their skin seldom take "cold," and when they do, they take rational care of themselves while it lasts. In these conditions the "cold" is generally mild and leaves no relics after it has passed off, not aggravating the pre-existing lesions. But a neglected cold in the tuberculous who are not taking good hygienic care of themselves is liable to stimulate the tubercle bacilli to renewed activity, or complications are set up by the infectious catarrh.

54. **Classification of Cases of Tuberculosis.**—Burnand discusses Bard's classification of tuberculosis, comparing it with his extensive clinical experience. Bard recognizes four forms: the parenchymatous, interstitial, bronchial and post-pleuritic, each with from two to four or more subdivisions. The parenchymatous form may be abortive or progressive, the latter including the caseous and fibrous and transition forms. Burnand expatiates in particular on the differentiation of an incipient progressive tuberculosis from the abortive form. The signs of abortive tuberculosis are exclusively local and mani-

festly mild. The lesion has already passed its prime and is declining when discovered, but at the same time it is better to tend a few cases of "still-born tuberculosis" rather than to let one incipient progressive case escape treatment. A young man had a slight hemoptysis in the midst of apparent health; there was no expectoration, fever, cough or loss of weight and none developed later, but a very slight tendency to dulness over the right apex was discovered and expiration was a trifle prolonged. There was also a history of congestion at the right apex in childhood and a pleurisy. The diagnosis of abortive tuberculosis was confirmed by the persisting good health to date. In a second case, similar in other respects, there was a loss of nearly 4½ pounds, an old catarrhal hawking each morning became a dry cough with a slight hemoptysis a month later, accompanied by a very slight rise in temperature. This case is classed as incipient progressive tuberculosis, as also a third typical case in which the patient had lost slightly in weight, with a briefly transient subfebrile temperature at one time. Although the local signs were insignificant, these slight general symptoms gave the alarm, confirmed by the rapidly progressive course of the disease. Burnand's article is not completed in this number.

55. **Spleen Organotherapy in Tuberculosis.**—Bayle has obtained such good results in this line that he does not hesitate to regard spleen tissue or extract as a specific method of treatment for tuberculosis. He gives 100 gm. of raw pork spleen tissue daily for three weeks and recommences again each time after an interval of two weeks. It is readily taken in soup or preserves, he says, or extracts of the spleen may be used. He commenced this treatment about 1903, and now has a record of 150 patients with pulmonary tuberculosis and twenty-two with bone or joint tuberculosis, all given a systematic course of spleen organotherapy, with a complete cure in 75 per cent. of the patients, only four not showing marked benefit under it. Joly has also cured 93 per cent. of his ninety patients. All the local processes heal under this treatment ten times faster, Bayle says, than is the case under any other methods of treatment. It is readily applied and causes no febrile reaction and no by-effects. He explains its specific action by assuming some hitherto unknown function of the spleen—possibly a colloid-producing function.

57. **Exophthalmic Goiter in Men.**—Pic and Bonnamour report two cases in male adults. In 563 cases of exophthalmic goiter which they found on record, 109 of the patients were men, less than 20 per cent., but all authors seem to agree that the affection generally has a stormier onset and runs a more serious course in men than in women, so that active measures should be instituted from the start, including prompt surgical aid if the medical prove inadequate.

Archiv für klinische Chirurgie, Berlin

XCV, No. 1, pp. 1-244. Last indexed May 6, p. 1365

58 *Krönlein's Operation for Retrobulbar Tumor. E. Bircher.
59 Two Unusual Cases of Ileus. E. Bircher.
60 Fibrin in Formation of Callus. S. Bergel and C. Pochhammer.
61 *Aseptic Suture of the Intestines. (Eine neue Modification der aseptischen Darmnaht.) M. I. Rostowzew.
62 Treatment of Fistula in the Penis. (Zur Behandlung der lippenförmigen Fisteln des männlichen Gliedes.) N. Wolkowitsch.
63 *Access to Otogenic Extradural Abscess. (Freilegung der vorderen Theile der mittleren Schädelgrube zur Erreichung ausgedehnter otogener Extraduralabscesse.) E. Ruttin.
64 Trypsin Treatment of Surgical Tuberculosis. W. Bätzner.
65 Fistula from Patent Thyroglossal Duct. (Fall von Fistula colli mediana hervorgegangen aus einem in ganzer Länge offen gebliebenen Ductus thyreoglossus.) H. Matti.
66 Case of Multilocular Cystic Retroperitoneal Tumor. E. G. Oser.
67 Displacement of the Vaginal Process and Resulting Superficial Inguinal Hernia. K. Bildinger.
68 *Postoperative Gastro-Intestinal Hemorrhages. (Magen-Darmblutungen nach Operationen.) J. R. v. Winiwarter.
69 Intravenous Ether Anesthesia. H. Kümmell.
70 General Ether Anesthesia by the Rectum. (Die Rectalnarkose mit Aetherlösungen.) K. Arnd.
71 Sterilization of the Skin. (Die Desinfection der Hände und des Operationsfeldes.) H. Küttner.
72 Regularity of Incubation Period in Infection of the Peritoneum. (Gesetzmässigkeit der Incubationszeit bei der peritonealen Infection mit nicht vorher im Körper angezüchtetem Keimmaterial.) P. L. Friedrich.

58. **Krönlein's Operation for Retrobulbar Tumor.**—Bircher adds another successful case to the 117 cases on record (up to 1905) in which this operation has been done. He urges its wider adoption, as it is comparatively simple and easy and not disfiguring.

61. **Modified Aseptic Suture of the Intestines.**—Rostowzew has slightly modified his clamp which permits suture of the clamped tissues, and shows the method of its use in thirteen illustrations.

63. **Exposure of the Middle Cranial Fossa.**—Ruttin gives an illustrated description of his simple method of access to an extensive extradural abscess originating in the middle ear. He also reports five cases in which this technic was applied with a successful outcome in three. The other patients succumbed to other complications. Even pus in the cerebrospinal fluid on lumbar puncture does not contra-indicate the operation, he declares.

68. **Postoperative Gastro-Intestinal Hemorrhages.**—Winiwarter's experience has demonstrated that hemorrhage is liable to occur in the gastro-intestinal tract from retrograde embolism or paralysis of the vessels from toxins in the blood after major operations anywhere on the body. These hemorrhages generally occur during the first three days after the operation. The changes in the stomach responsible for them rapidly heal and should not be regarded as an ulcer or precursor of an ulcer. The prognosis is grave when the hemorrhages are associated with severe general infection, as he shows by thirty cases from his experience. In treatment he recommends washing out the stomach with a silver nitrate solution. The article issues from von Eiselsberg's clinic at Vienna, this surgeon having been the first to call attention to the frequency of gastro-intestinal hemorrhage after laparotomies. Busse compiled ninety-six cases from the literature up to 1905; the thirty cases Winiwarter reviews all occurred in the clinic in the last five years. The necropsy findings confirmed the frequent causal importance of local injury in the stomach or duodenum from obstruction of veins by retrograde embolism from detached thrombi from ligated veins in the omentum or mesentery or thrombosis spreading directly from them. In rare cases injury of the central nervous system was responsible, but more frequent was a toxic paralysis of the vessels. The anesthetic, the vomiting and a general predisposition were also evident factors.

Berliner klinische Wochenschrift

July 3, XLVIII, No. 27, pp. 1213-1264

73 *Oatmeal in Diabetes. (Ueber Haferkuren bei Diabetes mellitus.) A. Magnus-Levy.
74 *Splenectomy for Idiopathic Enlargement of the Spleen. (Fall von idiopathischer Milzschwellung mit Splenektomie.) H. Senator and F. Krause.
75 *The Blood Findings in Roentgenologists. N. v. Jagic, G. Schwarz and L. v. Sicherock.
76 Underfeeding and Growth of the New-Born. (Unterernährung und Langenwachstum beim neugeborenen Kinde.) W. Birk.
77 Spontaneous Evacuation of Teratoma by Way of the Rectum. F. Honigmann.
78 Principles of Vaccine Therapy. H. Reiter.
79 Infant Welfare from Standpoint of Campaign Against Tuberculosis. J. Landsberger.

73. **Oatmeal in Diabetes.**—Magnus-Levy's experience has demonstrated, he asserts, that the advantages of oatmeal in the diet of diabetics are mostly on the negative side; that is, by the absence of meat. At the same time he admits that the oatmeal starch has certain special features different from those of the other cereals, particularly evident in its behavior in the intestines. He reiterates von Noorden's caution that a course of oatmeal should always be preceded by a few days of dieting, less than 50 gm. of bread being allowed in this preliminary period. Another point is that the oatmeal diet must not be kept up for weeks at a time. Three or four days are enough, then a vegetable day, and then, after a pause of a few days, the oatmeal is resumed again as before. The details of one such case are tabulated, showing how after five oatmeal courses (250 gm. oatmeal porridge) the patient acquired tolerance under these measures and was able to eat 50 gm. of bread without glycosuria, while before this on a strict diet, he eliminated from 50 to 70 gm. of sugar and large amounts of acetone. The oatmeal is not required for cases other than the severest and moderately severe. The method to be done properly and well requires daily deter-

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mination of the proportion of sugar in the urine. Certain diabetics may do equally well with rye or wheat meal instead of oatmeal. He adds that no satisfactory theory to explain the beneficial action of the cereals in diabetes has yet been presented beyond those suggested here.

74. **Idiopathic Enlargement of the Spleen.**—This is practically the last communication from the late Professor Senator. The case described resembled Banti's disease in some respects, but the absence of ascites and of the typical blood changes seemed to exclude this disease. The patient was a man of 40, and very little benefit followed splenectomy, but the persisting disturbances seem to be more in the nature of neurasthenia. Nothing organic can be found to explain them, and it is possible that his business, publishing books, may be too strenuous for him.

75. **Blood Findings in Roentgenologists.**—A Vienna specialist in *x*-ray work and another at Munich both succumbed not long ago to lymphatic leukemia, and Schwarz found the changes in the blood characteristic of this disease in a chemist long engaged in the production of radium. He also cites a fatal case in an American roentgenologist. This prevalence of lymphatic leukemia among roentgenologists was confirmed by examination of ten other, apparently healthy, roentgenologists. In all, the blood findings indicated some injury of the "granulocyte" system in the bone marrow or circulating blood. This is paralleled by an increase in the lymphoid elements—possibly a compensating process, but more likely the result of irritation from the action of the *x*-rays. These changes in the blood were more severe the more extensive and prolonged the work with the *x*-rays.

Deutsche medizinische Wochenschrift, Berlin

July 6, XXXVII, No. 27, pp. 1249-1296

80 The Spleen Is in Charge of the Metabolism of Iron. (Die Funktion der Milz.) L. Asher.
81 Reciprocal Relations Between Lung and Thorax with Emphysema. W. A. Freund.
82 *Enuresis and Myelodysplasia. (Enuresis nocturna und Myelodysplasie.) G. Peritz.
83 *Causal Treatment of Glycosuria and Diabetes. C. Funck.
84 Alleged Improvement in Technic for Wassermann Reaction. (Ueber die praktische Verwertbarkeit des von v. Wassermann kontrollierten Luesextraktes.) H. Stern.
85 Tincture of Soap in Sterilization of the Hands. (Alkohol und Seifenspiritus in der Händedesinfektion.) P. Sick.
86 Prophylaxis of Tuberculosis. O. Mosezik.

82. **Enuresis as a Manifestation of Myelodysplasia.**—Fuchs explains enuresis in certain cases as the result of an occult spina bifida, which in turn is due to defective development of the spinal cord, a myelodysplasia as he calls it. Peritz has examined twenty guardsmen with enuresis and two other adults and twenty children, and the Roentgen findings all confirm this assumption of defective development of the spinal cord and spine as an important factor in the enuresis. He found the myelodysplasia pronounced in 68.2 per cent. of the adults and in 35 per cent. of the children. Syndactylia was also frequent among these individuals and disturbances in the thermic sense. Instead of the normal small triangle of the sacral hiatus the opening is wide and extends high up with or without bone crossbars. The dehiscence shows up well in the radiograph. Defective development of the lower part of the spinal cord explains the success of Cathelin's epidural injections in treatment in certain cases of enuresis. The fluid distends the cicatricial tissue and crossbars and releases the nerves from the pressure of the abnormal bands, etc., and they resume normal functioning. The individual then regains volitional control of the bladder sphincter. The effect is purely mechanical, but it is almost certain to cure the enuresis in the cases of this category. The aim in treatment of enuresis should be to discover the actual cause of the condition; and if myelodysplasia is suspected, to remedy conditions in this or some similar way.

83. **Causal Treatment of Diabetes.**—Funck set himself to the task of discovering some cooperating factor besides the anomaly in the utilization of sugar as responsible for the causation of diabetes, and he states that gastro-intestinal disturbances were found unexpectedly prominent when the cases were studied from this dual causal standpoint. Instead of devoting all the energies to curing the disturbance in the metabolism of carbohydrates, he has obtained surpassing results by attacking the cause which he suspected of being responsible for the disturbance in the metabolism, as he explains in detail. He insists that the disturbance may be in the fixation as well as in the oxidation of the carbohydrates, and that unsuspected chronic gastritis or gastrogenous enteritis may be the primal factor of the disturbance, or at least responsible for exacerbations. In the severest case reported, the patient in incipient coma, he introduced a fine sound into the duodenum and flushed the intestines, sending through in thirty-eight hours 9 liters of a physiologic salt solution, at the rate of a drop a second, utilizing in this way the enormous area of mucous membrane surface in the intestine. No food was allowed but milk for four days, and after that mostly rice and milk, with hydrochloric acid as the only drug. The patient was soon free from sugar and attends to a very responsible business. Milk and rice are the main reliance in diet in this and the other cases cited.

Medizinische Klinik, Berlin

July 2, VII, No. 27, pp. 1031-1068

87 *Diabetes Mellitus. O. Minkowski.
88 *Tuberculosis of Female Genital Organs. O. v. Franqué.
89 *Hemorrhage in the Spleen. (Ueber Milzapoplexien.) L. Bleibtreu.
90 Clinical Importance of Intermittent Obstruction of Nose. (Die klinische Bedeutung der intermittierenden Nasenstenose für Atmung und Blutkreislauf.) H. Rothholz.
91 Origin and Treatment of Chronic Constipation. S. Landsberg.
92 *Hints for Thiersch Skin Flap Transplantation. (Thierschsche Hautverpflanzung.) E. Schepelmann.
93 Irritation from Denatured Alcohol Used in Sterilization of the Hands. W. N. Clemm.
94 Technic for Clinical Experiments. (Ueber einige Bedingungen des klinischen Experimentes.) M. Katzenstein.

87. **Diabetes.**—Minkowski discusses the latest conceptions in regard to the cause of the overloading of the organism with sugar, and in which organs is located the anomaly responsible for the disturbances. The reaction to the hitherto prevailing over-strict deprivation of carbohydrates is swinging to the other extreme, he fears, but he does not hesitate to admit that he has derived unmistakable benefit from a course of oatmeal diet in certain cases. In several recent experiences, patients with impending or already installed coma seemed to have been dragged from the jaws of death by the oatmeal cure. But, he continues, it is adapted only for a small group of diabetics, and the benefit derived is not permanent. He thinks the benefit from the oatmeal lies partly in the restriction of protein; the fat also should be reduced as much as possible in combating the acidosis. Restriction of protein not only does away with this source of sugar production, but it also reduces the metabolism as a whole. Naunyn, he adds, has especially emphasized the advantages of reducing the amount of the total metabolic processes as a distinct gain in many cases of diabetes. It is therefore wise to reduce the amount of muscular exercise in severe cases of diabetes. In the mild forms there is less danger of doing harm with a very strict course of dieting, while the aim is not merely to tide the patient along, but to cure or at least to increase the tolerance for sugar permanently.

88. **Tuberculosis of the Female Genitalia.**—Franqué is convinced that the frequent primary invasion of the Fallopian tubes in genital tuberculosis can be explained only by infection from the vagina in the majority of cases. It has been his experience that nodules could be palpated in the pouch of Douglas with other than tuberculous affections, and he cites some cases in which adenomatous proliferations spread from the uterus to the floor of the pelvis and to the rectum. The tuberculin reaction he also found frequently misleading with tuberculosis of the female genitalia, being negative and especially without any focal reaction in some cases which proved to be typical tuberculosis, while in others there was a positive reaction when the course of the cases and operations failed to reveal the least tuberculous lesions in the genitalia. In one case in this latter group the trouble proved to be a hematoma in each ovary in a virgin; in another there were multiple myomas in the uterus with inflammation around the uterus and a hematoma in one ovary. He inquires whether others have obtained positive tuberculin reactions with old encapsulated hematomas and hematoceles. In another case

there was effusion in the abdominal cavity and signs of tuberculosis in the lungs, suggesting tuberculous ascites, and the pregnancy was artificially interrupted on this account, as the tuberculin reaction had been positive, but the course of the case revealed a gall-stone trouble with no further signs of tuberculosis. Each time, however, the uterus reacted to the three tuberculin injections with hemorrhage, but no trace of tuberculosis could be found in the uterus adnexa after their removal nor in the scrapings of the uterus. In another case the test injection of tuberculin caused such serious peritonitic symptoms with ileus and collapse that the patient's life was in danger. This case warns of the necessity for care in applying the tuberculin test when there are reasons for assuming the existence of adhesions between the intestines. Schlimpert and Zöppritz have also recently called attention anew to the unreliability of the tuberculin test in affections of the female genital organs. Franqué operates on principle whenever convinced of the tuberculous nature of a tumor in the uterus adnexa, if it seems to be the only or the predominant manifestation of the disease. He thus operated in thirty-seven cases over five years ago, including nineteen with genital and eighteen with peritoneal tuberculosis, and all the patients made a smooth recovery and were much benefited with a single exception. This patient had the rectum injured during the operation, as it was closely adherent to the seriously diseased ovary, but the woman's fistula has since healed and she is now married. In three cases there was suppuration in the scar, fourteen and fifteen months later after apparently smooth primary healing, but the lesion soon healed. He regards a tuberculous process in the genital organs as a very serious lesion if left unmolested. In one case after an apparent cure under medical measures only, the process perforated into the rectum. When the uterine mucosa becomes involved the process may be regarded as "open," and the patient thus becomes a source of danger for others, to say nothing of the danger for herself of mixed infection from the intestines. He cites three new cases to show that genital tuberculosis displays scarcely any tendency to spontaneous cure; a concomitant tuberculous peritonitis healed completely, while the genital lesions persisted unmodified or gradually progressing.

89. **Hemorrhage in the Spleen.**—In the first case the patient, a physician of 37, had verrucous endocarditis, but it revealed no signs of its presence until embolic obstruction occurred in the spleen, the infarct leading to hemorrhage and rupture. In the second case a young man, a hemophilic with pulmonary tuberculosis, succumbed with the same symptoms, indicating hemorrhage in the spleen, rupturing the organ.

92. **Improved Technic for Thiersch Flaps.**—Schepelmann extols the advantages of tincture of iodin for sterilization of the skin before taking the flaps. Only the upper layer of the epithelium was thrown off in consequence, even when the tincture had been applied three times. Another simplification of the technic which he advocates is the use of ethyl chlorid local anesthesia, and a special knife which automatically regulates the thickness of the slice. The freezing does not seem to impair the vitality of the flaps. The frozen flap keeps smooth and flat, so that there is no trouble from its crumpling as it is transplanted. Superheated air has been doing good service in the after-treatment of the transplanted flaps.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

XXXII, Supplementary Number, pp. 1-62

95 Vaginal Operations for Extra-Uterine Pregnancy; 107 Cases. (Die vaginale Köllotomie bei ektopischer Schwangerschaft.) W. L. Jacobsohn.

96 Vaginal Operations for Uterine Tumors. (Der vaginale Weg in der operativen Behandlung der Uterusgeschwülste.) R. Kilparsky.

97 Vaginal Ovariotomies During Pregnancy; Twelve Cases. A. Korobkoff.

98 Vaginal Operations for Disease of Uterine Adnexa; 390 Cases. (Zur Frage der Behandlung der Adnexerkrankungen mittelst Coeliotomia vaginalis.) A. Markowsky.

99 Conservative Treatment by Vaginal Celiotomy. W. Preobrajenski.

100 Appendectomy Accompanying Vaginal Celiotomy; Five Cases. J. de Soboleff.

101 Vaginal Celiotomy with Uterine Cancer Accompanying Pregnancy; Seven Cases. J. Werboff.

102 Illumination of Interior of Puerperal Uterus. (Beleuchtung der Höhle des puerperalen Uterus.) A. Sitzinsky.

103 *Reasons Why Results Are Better with Vaginal Than Abdominal Celiotomies. (Wodurch werden die besseren Erfolge bei den vaginalen Koeliotomien im Vergleich mit denjenigen bei den abdominalen bedingt?) D. v. Ott.

103. **The Vaginal Method in Gynecology.**—All the articles in this supplementary number of the *Monatsschrift* are from the institute for obstetrics and gynecology in charge of Prof. von Ott at St. Petersburg. He is an ardent champion of the vaginal route for operations within the pelvis, and his communication is accompanied by numerous illustrations showing his special technic for illumination of the interior of the pelvis through the vagina and also for direct inspection of the bladder and rectum. (Some of the illustrations are the same as those reproduced in THE JOURNAL, Aug. 23, 1902, p. 458.) His experience with the 1,137 cases summarized in these various articles and those of his assistants confirm, he thinks, the numerous advantages of the vaginal over the abdominal route wherever it is practicable. Soboleff reports his experiences with appendectomy by way of the vagina secondary to a gynecologic operation, having found the illumination through the colpotomy wound ample for the purpose.

Münchener medizinische Wochenschrift

July 4, LVIII, No. 27, pp. 1433-1488

104 *Course of Wheat Flour Diet in Diabetes Mellitus. (Beitrag zur Theorie der Verwendung der Kohlehydrate in der Therapie der Zuckerkrankheit.) L. Blum.

105 *Determination of Epinephrin in the Blood. (Ueber Adrenalinbestimmung im Blute.) J. M. O'Connor.

106 *Specificity of Antianaphylaxis. M. Calvary.

107 *Fixation of Mobilized Scoliosis and Kyphosis. (Fixierung der mobilisierten Skoliose und des runden Rückens.) J. Fränkel.

108 *Phosphaturia. F. Schlagintweit.

109 Improved Staining Technic for Leukocytes. (Eine einfache Färbung der Leukozyten in der Zählkammer mit Differenzierung der einzelnen Zellarten.) W. Schüffner.

110 Improved Differential Romanowsky Staining Technic for Blood Smear Preparations. (Romanowskyfärbung von Blutausstrichpräparaten mittelst der Farblösung von Jenner.) O. L. E. de Raadt.

111 Bone Cysts. (Kasuistischer Beitrag zur Kenntnis der Knochencysten.) Brade.

112 Technic for Intravenous Injection. (Zur Methodik der Venenpunktion und der intravenösen Injektionen.) E. Sachs.

113 Dosage of Roentgen Rays. Bucky and R. Klenböck.

104. **Carbohydrates in Diabetes.**—Blum gives a number of tables and further arguments to recapitulate and supplement those he has recently published elsewhere. (One of his articles was summarized in these columns August 5.) He is docent at Strasburg, and the work issues from the medical clinic in charge of Moritz, the scene of much pioneer research on the nutritional diseases. He reiterates anew that the aim in treatment is to put an end to the glycosuria, and that nothing is able to do this in such a simple, rapid and harmless way as restriction to oatmeal or wheat flour. But there can be no hard-and-fast rule for this; the amount of the carbohydrate allowed must vary with the severity of the disease.

105. **Determination of Epinephrin in the Blood.**—A number of physiologic experiments and tests are related by O'Connor to determine the presence of epinephrin in the blood. His research seems to indicate that blood serum contains not only epinephrin, but some other substances with similar properties. He found that the action of serum was greater on the rabbit uterus than the action of an epinephrin solution of the same concentration of epinephrin. This difference is suggested still more forcibly by the fact that the pure solution of epineprin has an inhibiting action on the intestine, while serum from the carotid, containing the same proportion of epinephrin, has a stimulating action on the bowel.

106. **Specificity of Antianaphylaxis.**—Calvary's experiments seem to indicate that an alien serum has the same action as a homologous serum in respect to production of anaphylaxis and protection against it, but that there is a great quantitative difference between them, sixty times as much of the former as of the latter being required to accomplish the same results. The conditions are similar to those with precipitation and agglutination; the response is a group response, and it occurs with special intensity exclusively with the homologous allergy-producing substance.

107. **Fixation of Mobilised Scoliosis and Kyphosis.**—Fränkel reports excellent results from treatment of curvature of the spine by a plaster bed holding the spine in extremely exaggerated over-correction, such as is obtained by the creeping

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exercises which Klapp has found of such service in treatment of scoliosis. (His method of thus transforming children with deformed and weak backs into "back athletes" was described in THE JOURNAL, Feb. 24, 1906, page 625.) The creeping is the ordinary four-footed gait exaggerated to twist the spine from side to side in as wide sweeps as possible. Over-correction by a plaster bed supplements the effects of the creeping exercises and renders the benefit permanent. In fitting the bed the aim is to utilize all the points where it is possible to obtain support, the head, shoulder, arms, pelvis and thighs all helping to maintain the over-correction. Especially important is it to fasten the swinging arm and swinging thigh as in the creeping exercise. Only by utilizing all the leverage points possible are the best results attainable. The plaster sheet is applied with the patient lying sprawled out on the table as in an exaggerated correcting creeping exercise, the head, chest and pelvis resting on supports to facilitate the application of the plaster, the arms extended and grasping supports at a certain distance above the table. The plaster bed for a patient with right convex dorsal scoliosis is shown in Figure 1, and for a left convex lumbar scoliosis in Figure 2. The combination of effectual and prophylactic functional treatment with a plaster bed constructed on the same principles is giving extremely gratifying results at the university clinic in Berlin in charge of Bier, where the method is being applied on a large scale. Fränkel is Bier's assistant.

Fig. 1 Fig. 2

108. **Phosphaturia.**—Schlagintweit discusses five types of phosphaturia, and remarks that both soft and hard alkaline concrements may be present for a long time without causing disturbances. He has had from 280 to 300 patients with phosphaturia, and has operated in nineteen or twenty of the cases. All his observation and research has but confirmed him in the opinion that phosphaturia is essentially a secretory disturbance in the kidneys of nervous character. The irritation causing the nervous disturbance may be at some other point of the urinary apparatus and act by reflex influences, or it may be due to a solitary functional anomaly in the kidney cells. That is to say, he regards phosphaturia as a local neurotic affection, and its frequent connection with neurasthenia, hypochondria, abdominal atony, mental strain and mania testifies further to this relationship. Boursier has reported a case of intense phosphaturia in a clergyman which subsided after correction of phimosis. Among the other evidences presented to sustain this view is the prompt elimination of large amounts of phosphates when the ureter catheter is introduced into a sound kidney pelvis, while the urine from the other kidney contains little, if any, phosphates, showing the influence on the secretory apparatus of the reflex stimulus from introduction of the catheter. If the urine is very alkaline and contains much phosphates, the indigo-carmin test may prove misleading, as the urine is liable to be colorless; addition of a little acid to the urine, however, counteracts the influence of the alkalies and brings out the blue tint at once. He warns, further, that a simple alimentary or neurotic phosphaturia may lead to ammoniacal cystitis or pyelitis. Treatment of the phosphaturia and its consequences must be both neurologic and gastro-intestinal. If no lesion can be found in the urinary tract, Schlagintweit gives hydrochloric acid internally and forbids all irritating and alkaline food and drinks. If he finds leukocytes in the urine, he alternates the hydrochloric acid with disinfectants for the urinary tract. If the phosphaturia still persists, he consults with a gastro-intestinal specialist or neurologist or both, bearing in mind that too much specialist neurologic and urologic intervention may breed serious neurasthenia. With a phosphaturic sexual neurasthenic the slightest heedless word or unnecessary instrumental meddling may avenge itself with grave consequences. The serious outcome possible with phosphaturia is instructively shown by his case of a well-to-do merchant of 39; phosphaturia developed after a gonorrheal abscess in the prostate, and for seven years he passed occasional phosphate calculi and had kidney colics, always on the left side. The pains were so severe he became addicted to morphin; then followed a period of four years free from concrements. Then the left kidney was removed, but the whole drama started anew on the right side, with increasing morphin and cocain addiction. Each puncture hole suppurated so that some abscess had to be opened nearly every day, and scarcely any part of the body was free from them until he succumbed. Phosphaturia is thus shown to be a subject interesting alike the practitioner, the internist, the stomach specialist, neurologist and surgeon.

Virchows Archiv, Berlin

June, CCIV, No. 3, pp. 321-474

114 Experimental Research on Myeloid Metaplasia. A. Werzberg. Commenced in No. 2.
115 Peculiar Malignant Hyperplasia of the Liver. (Regenerations-hyperplasie?) T. Tschistowitsch.
116 Pathology of Musculature and Elastic Tissue in the Bladder. (Entstehung der sogen. echten Divertikel der Harnblase, insbes. des Blasengrundes, nebst Beiträgen zur Lehre von der Pathologie der Muskulatur und elastischen Gewebe in der Harnblase.) S. Sugimura.
117 Relations Between Malformation of the Kidneys and of the Genital Organs. (Missbildungen der Nieren und der Geschlechtsorgane.) P. Guizzetti and F. Parlset.
118 Splenic Anemia and Infectious Granuloma. E. A. Oppenheim.
119 Deformity of Arm. (Fall einer sonderbaren angeborenen Missbildung der oberen Extremität.) A. Krokiewicz.
120 Production of Tumor Chains and Bridges with Transplantable Mouse Cancers. (Ueber die Erzeugung von Tumorketten, Kugeltumoren und Tumorbrücken beim Arbeiten mit dem transplantablen Mäusekarzinom.) H. Stahr.
121 Finer Structure of Tuberculous Giant Cells. (Tuberkulöse Riesenzellen.) T. Wakabayashi.
122 Melanosis in Calves. (Die Melanose der Kälber: Beitrag zum Krebsproblem.) A. Jaeger.
123 Vital Metachromatic Staining with Sulphurhodamin. N. Andrew.
124 Nodular Syphilitic Leptomeningitis and Syphilitic Arteritis. H. Beitzke.
125 Syphilitic Aortic Insufficiency. K. Koch.

Wiener klinische Wochenschrift, Vienna

July 6, XXIV, No. 27, pp. 963-1002

126 Portal of Entry for Tuberculosis. (Ueber den gegenwärtigen Stand der Eintrittspforten-frage bei der Tuberkulose.) J. Bartel.
127 Frequency and Diagnosis of Tuberculosis of Uterus Adnexa. O. Bondy.

Zentralblatt für Chirurgie, Leipsic

July 8, XXXVIII, No. 27, pp. 921-952

128 *Transient Blindness After Injection of Novocain-Suprarenin Into the Orbit. W. Jassenetsky-Woino.
129 Treatment of Typical Fracture of the Radius. M. Friedmann.

128. **Transient Blindness After Injection of Anesthetic into the Orbit.**—Woino reports a case similar to the one recently published by Kredel. He injected a 0.5 per cent. solution of novocain-suprarenin, according to Braun's technic, into both orbits in operating for a bilateral frontal empyema. The local anesthesia had been preceded by the scopolamin-morphin "twilight sleep." The solution evidently caused an inflammatory effusion in the orbit, mechanically disturbing the circulation in the optic nerve and leading to transient blindness, with congestion in the lids and some temperature. The symptoms soon subsided entirely so that vision was normal by the third day. The complete restitution excludes the assumption of a neuritis.

Zentralblatt für Gynäkologie, Leipsic

July 8, XXXV, No. 27, pp. 953-1000

130 Extraperitoneal Cesarean Section. (Für den extraperitonealen Kaiserschnitt.) O. Küstner.
131 Technic of Cesarean Section. E. Opitz.
132 Roentgentherapy in Gynatry. (Zur gynäkologischen Röntgenbestrahlung.) Albers-Schönberg.
133 Adjustable Knife in Shape of Shepherd's Crook for Decapitation. (Das Hakenmesser, ein neuartiges Dekapitationsinstrument.) E. Franz and J. Braun.
134 Hypnosis. (Meine Schlussbemerkungen zum Thema "Hypnose.") A. Rieck.
135 Self-Holding Speculum with Receptacle and Strainer for Curetted Scraps. (Hintere Platte mit "Fangsieb.") Weissbart.

Policlinico, Rome

July 2, XVIII, No. 27, pp. 841-872

136 Diagnosis of Pulmonary Tuberculosis. F. Fornara.
137 Pseudo-Appendicitis in Course of Pneumonia. (Crisi pseudo-appendicitiche nel decorso delle polmoniti. Influenza del simpatico.) G. Carcaterra.

Ugeskrift for Læger, Copenhagen

June 15, LXXIII, No. 24, pp. 871-902

138 *Trachomatous Urethritis and Conjunctivitis from Modified Gonococci? (Fremkaldes den trakomatøse Konjunktivitis af muterede Gonokokker? Existerer en trakomatøs Uretritis?) C. F. Heerfordt.

June 22, No. 25, pp. 903-934

139 Solutions of Pepsin Lose Strength with Age. (Undersøgelser over saltsure Pepsinopløsningers Svækkelse ved Henstand.) P. Liebmann and L. Johannessen.
140 Experiences with "Albumin Milk." (Om Aeggehvidemælk.) O. Lendrop.

June 29, No. 26, pp. 935-974

141 *Survival and Causes of Death with Cancer of the Digestive Organs. (Levetid og Dødsmarsager ved Cancer i Fordøjelsesorganerne.) C. Otto.

July 6, No. 27, pp. 975-1006

142 Differential Diagnosis Between Gastric Cancer and Simple Chronic Gastritis with Achylia. S. Kemp. Concluded in No. 28.

138. Trachomatous Urethritis?—Heerfordt asks whether trachomatous conjunctivitis can be caused by modified gonococci and whether there is such a thing as a trachomatous urethritis, referring to Prowazek's "cell inclusions," and discussing the literature and findings on the subject, especially Hertzog's assumption that the cell inclusions are merely modified gonococci. Heerfordt thinks that the evidence to date sustains this view.

141. Cancer in the Digestive Tract.—Otto analyzes the findings during life and at necropsy in 196 cases of cancer in the digestive organs, studying especially the length of the period after the first symptoms were noted before the individuals applied for medical aid; also the survival and the causes of death. The tabulated details show that persons very seldom die from the cancer as cancer, but they succumb to perforation or hemorrhage or functional disturbance from compression. In fifty-four of the cases the first symptom had been trouble from stenosis or motor insufficiency in the stomach or intestine; in eight others perforation occurred without warning. Jaundice was the first symptom in a case of cancer of the duodenum, in two in the pancreas and four in the gallbladder; in fifty-four the first symptoms had suggested chronic gastritis, including eight cases of cancer of the pancreas and three of the esophagus; pains in the lumbar region had been the first symptom in five cases, the cancer being in the pancreas in all this group. There was evidently a longer or shorter period of latent development before the onset of symptoms. One table shows the conditions in regard to metastasis, glandular enlargement and extent of the cancerous involvement as compared with the number of days or months or years that had elapsed after the first symptoms had attracted attention. This interval had been from one to four years in two cases of cancer of the esophagus without metastasis, and in three with involvement of the regional glands, in four cases of cancer of the pylorus with involvement of glands, and in two in the intestines without metastasis. The cancer had not been diagnosed in fifteen of the total 196 cases, but in four of this group the intercurrent fatal disease had probably masked the symptoms. In thirty-three cases extensive malignant disease was found at necropsy within two months after the first symptoms. Of the total 196, 121 of the patients died within the first six months and the date is not known for nine others. These early fatal cases included thirty of cancer in the esophagus, eighteen at the pylorus, seven at the cardia and twenty-five in the body of the stomach. The length of the latent phase is determined mostly by the width of the organ involved—the narrower the lumen the sooner symptoms develop. Consequently, cancer in the stomach and large intestine may have a long latent period, while cancer at points easily obstructed, as at the pylorus, soon makes its presence felt. The early fatal outcome with cancer of the pancreas is due to the mechanical functional disturbances in the region. The chief aim for further study of cancer is, therefore, he says, the first period of latency before the malignant disease has reached the stage of obstruction and compression.

Books Received

EPIDEMIC DROPSY IN CALCUTTA. Being the First Report of an Enquiry Carried Out by Major E. D. W. Greig, M.D., D.Sc., I.M.S., Under the Direction of the Director, Central Research Institute, Kasauli. Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India. No. 45. Issued under the Authority of the Government of India by the Sanitary Commissioner with the Government of India, Simla. Paper. Price, 2 shillings. Pp. 46. Calcutta: Superintendent Government Printing, India, 1911.

LEHRBUCH DER THERAPIE INNERER KRANKHEITEN FÜR ÄRZTE UND STUDIERENDE. Volume I. Allgemeine Therapie Innerer Krankheiten. By various authors. Herausgegeben von Dr. Paul Krause, Professor und Direktor der Medizinischen Universitäts-Poliklinik in Bonn und Dr. Carl Garre, Professor und Direktor der chirurgischen Universitäts-Klinik in Bonn. Paper. Price, 11.50 marks. Pp. 758, with 345 illustrations. Vienna: Gustav Fischer, 1911.

EVOLUTION. By Patrick Geddes, Professor of Botany, St. Andrew's University, and J. Arthur Thomson, Regius Professor of Natural History, Aberdeen University. Joint authors of "The Evolution of Sex." Cloth. Price, 75 cents net. Pp. 256. New York: Henry Holt & Co., 1911.

PRACTICAL MEDICAL CHEMISTRY FOR PHYSICIANS AND STUDENTS. By Charles Platt, A.C., M.D., Ph.D., and William A. Pearson, Ph.C., Ph.D., Analytical and Consulting Chemist. Sixth Edition. Cloth. Price, $2.50 net. Pp. 254. Philadelphia: John Jos. McVey, 1229 Arch Street, 1911.

PANCREATITIS AGUDA HEMORRAGICA. Tesis Presentada para Optar al Grado de Doctor en Medicina. Por Pedro I. Elizalde, Ex-externo e interno del Hospital San Roque. Universidad Nacional De Buenos Aires. Facultad De Ciencias Medicas. Buenos Aires: De E. Spinelli, 1911.

A MANUAL OF SURGERY. For Students and Physicians. By Francis T. Stewart, M.D., Professor of Clinical Surgery, Jefferson Medical College. Second Edition. Cloth. Price, $4 net. Pp. 682, with 553 illustrations. Philadelphia: P. Blakiston's Son & Co., 1911.

THE ANIMAL WORLD. By F. W. Gamble, F.R.S., Professor of Zoology in the University of Birmingham. With introduction by Sir Oliver Lodge, F.R.S. Cloth. Price, 75 cents net. Pp. 252, with 36 illustrations. New York: Henry Holt & Co., 1911.

VERZEICHNIS DER VORLESUNGEN AN DER HOCHSCHULE ZURICH IM WINTERSEMESTER, 1911-12. Oct. 17 to March 3, 1912. Paper. Pp. 35.

New Patents

New Patents of Interect to Physicans

982462 Electric incubator and nursery. Adolf Beckstrom, Lewiston, Mont.
982232 Medical applicator. John A. Bartholomew, Chicago.
982289 Adjustable invalid cot. Royal R. Miller, Pueblo, Colo.
982552 X-ray tube. Harry F. Waite, New York, N. Y.
982554 Matrix car ile. Gustav E. Wallin, Kansas City, Mo.
983223 Bleeping lung. Ezra H. Fitch, Montclair, N. J.
982807 Invalid lifting apparatus. Jesse Fravel, Dayton, Ohio.
982996 Wire spring stem pessary. George E. Rowell, San Bernardino, Cal.
982997 Ambulance. Irone H. Russell, Washington, D. C.
982903 Atomizer. John S. Thurman, St. Louis.
983806 Oxygen generator. Richard C. Bradley, Shreveport, La.
983547 Anatomical skeleton. Charles E. Fleck, Orange, N. J.
983560 X-ray frame. Amecee Granger, New Orleans.
983598 Skull cutter. Frank Holt, Chicago.
983721 Ankle brace. Charles H. Irish, Zion City, Ill.
983657 Electromagnetic vibrator. Chester H. Thordarson, Chicago.
13199 (Reissue.) Apparatus for killing bacteria in liquids. Joseph Willmann, Skelton, Conn.
984179 Artificial hand. Leonard Aydt, Seattle, Wash.
983871 Syringe. Joseph J. Brin, Chicago.
984374 Combined bed and stretcher. Edward J. Jardin, Brooklyn.
984003 Clinical thermometer case. Joseph C. Jenkins, Lititz, Pa.
984148 Syringe. Joseph F. Milligan, Cheyenne, Wyo.
984106 Antiseptic composition. Ernest D. Reed, Dublin, Ind.
984030 Gas liquefying apparatus for demonstration purposes. Wilhelm P. Schneider, Hamburg, Germany.
984037 Syringe. John H. Sheets, New York.
41155 Soda dispensing fountain. David E. J. Noonan, St. Louis.